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OF

TUBERCULOSIS

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ORIGINAL ARTICLES.

A POPULAR CRUSADE AGAINST CONSUMPTION.

By C. H. GARLAND,

Hon. Secretary of the Special Appeal Committee of the National Association for the Prevention of Consumption.

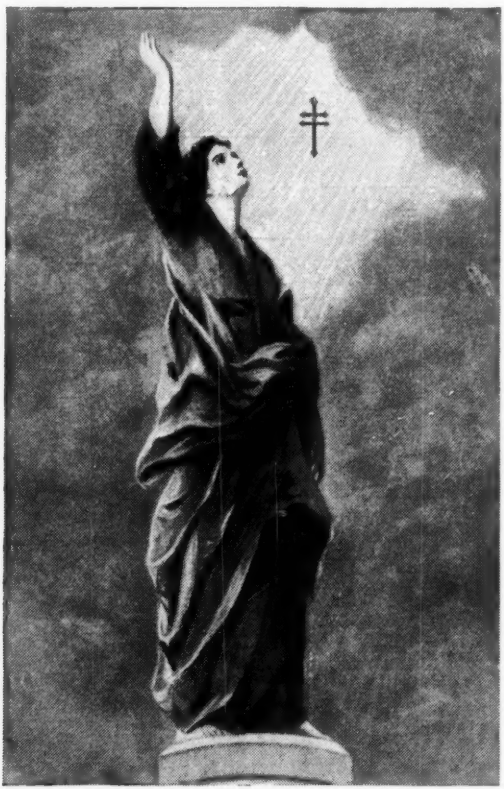
For some years past the work of the National Association for the Prevention of Consumption has been hampered by lack of funds. This Association, which came into being under the auspices of His late Majesty King Edward VII., and which opened its work brilliantly by the organization of the British Congress on Tuberculosis in 1901, has been lessening its activity and losing its influence until in 1908 matters may be said to have reached low-water mark. The income of the Association, after remaining steadily at £1,000 per annum or over until 1905, gradually dwindled, until in 1909 it was only £340. With the immense field of work to be covered such an income was absurdly inadequate.

A Policy of Progress.

In the early part of the current year, by the liberality of a donor who wished to remain anonymous, funds were placed at the disposal of a Committee for the purpose of organizing a more energetic effort to increase the income. This Committee, which is known as the *Special Appeal Committee*, consists to-day of the following members: Right Hon. the Earl of Derby (Chairman), Miss McGaw, Professor William Osler, Waldorf Astor, Esq. (Joint Hon. Treasurer), Dr. A. Latham, Dr. Lawson, H. L. Woolcombe, Esq., Sir Francis Laking, G.C.V.O., Dr. Spitta, F. W. Wareham, Esq., His Grace the Duke of

Devonshire (Joint Hon. Treasurer), Her Excellency the Countess of Aberdeen, Dr. J. J. Perkins, George Harwood, Esq., M.P., Gardner Sinclair, Esq., David Davies, Esq., M.P., and C. H. Garland (Hon. Secretary).

In June last the Committee made its first appeal to the public, and



AN ARTISTIC POSTER: "FAITH," AFTER THE PICTURE BY SIR JOSHUA REYNOLDS.

in doing so set out its objects and methods, and estimated that in order to carry out a crusade that would be efficient an income of at least £5,000 per annum would be required. Such an estimate was an exceedingly moderate one, and there should be no difficulty in insuring such an income if the ear of the public can be gained.

Statistical Data.

In its circular the Committee draws attention to some startling facts with reference to consumption in the United Kingdom. The death-roll of 60,000 persons annually is in itself a terrible figure, and one which should stimulate attention and practical measures. The cost of consumption in pounds, shillings, and pence is also enormous. For instance, the Committee states that Poor Law institutions are spending annually £1,500,000 on the relief of consumption, friendly societies are spending £1,250,000, charitable institutions are spending £500,000, whilst the working classes of the United Kingdom are losing £3,000,000 annually in wages from this one disease. The direct loss to the country cannot be less than £3,000,000 annually, whilst the total direct and indirect cost is moderately estimated at £8,000,000 per annum.

The Rôle of Education.

The Committee's work is aimed at educating public opinion. The income for which it asks is not intended for the endowment of any institutions or special forms of treatment. Its only desire is to educate public opinion, and so create a demand for preventive and ameliorative measures. Once such a body of public opinion is created, once sufficient support is attracted and directed towards the voluntary, municipal, and State agencies which already exist, there is little doubt that useful measures will emerge. The Committee believes that such an educational campaign could be best carried on by means of :

1. Travelling tuberculosis exhibitions.
2. Caravans with lantern slides.
3. Popular lectures.
4. An information bureau for the Press and public.
5. The distribution of literature.

Ways and Means.

It is estimated that the cost of these various educational agencies will be covered by £5,000 per annum. Thus in the circular the Committee states :

£500 will fit out an exhibition.
£600 will run such an exhibition for a year.
£300 will fit out a caravan exhibition.
£700 will run it for a year.
£5 will pay for a lecture.
£1 will pay for a set of lantern slides.
One penny will pay for educational leaflets.

The work of the Committee has already received the written and unqualified approval of the Rt. Hon. H. H. Asquith, M.P., the

Rt. Hon. A. J. Balfour, M.P., and the Rt. Hon. John Burns, M.P. Letters of the same purport have been received from the Archbishop of York, the Archbishop of Westminster, the Chief Rabbi, and some of the leading men and women in medical and social movements. Up to the present moment there is no cause to grumble at the response which has been made to the Committee's appeal.

With all its efforts to collect money the Committee has sought to combine educational propaganda. Permission has been granted by the Postmaster-General for the issue of a special form of stamp-collecting book by which small subscribers can be approached for contributions of a penny and upwards. On all these books, of which many thousands have been issued, some of the main facts in connection with consumption have been printed. Small books containing forty coupons, to be sold at 6d. each, have also been issued, and a considerable number have been disposed of by secretaries of clubs, by members of the Association, and other helpers. On the coupons also have been printed the main facts with reference to the disease.

Reaching the Man in the Street.

One of the most striking and effectual offers of help made to the Committee was made by the United Billposters' Association and the London Billposters' Protection Association. These two bodies, after considering the matter in joint conference, offered to place at the disposal of the Committee billposting space throughout the United Kingdom on such a large scale that it has been moderately estimated at a value of £2,500 per month. In addition offers have been received and accepted from advertising contractors, dealing with advertising space in omnibuses, tube-cars, and the railway stations in England and Scotland. The Committee, in order to make use of these valuable and munificent offers, was compelled to consider the question of producing posters on a large scale. A poster specially designed and selected by the Committee, which measures 10 feet by 7 feet 6 inches, was printed in colours by the well-known firm of Messrs. David Allen and Sons. The central picture of this poster was an adaptation of Sir Joshua Reynolds' figure of "Faith" in the stained-glass window of New College, Oxford. This poster must now be very familiar to all readers of the BRITISH JOURNAL OF TUBERCULOSIS, and I have pleasure in illustrating this article with a reproduction of the central figure. These posters may be said to have appeared in every town and village in the United Kingdom. In addition to the 30,000 posters produced under this arrangement, a further 20,000 posters, of the same size and of a value of £1,000, have been presented to the Committee by Mr. W. Gardner Sinclair.

The second poster is very beautiful and attractive, and I have

pleasure in further illustrating this article by a reproduction of the design. It has been executed in eight colours by Messrs. Dobson, Molle and Co. of Edinburgh. This picture also will be familiar to my readers. These do not conclude the list of gifts which have been made to the Committee in the shape of printed matter. Several well-

A POPULAR POSTER: AN APPEAL FOR HELP.

known firms have given large packets of posters of varying sizes, some of them measuring as much as 60 inches by 40 inches. Such gifts for the most part have been of 5,000 copies of the poster in question. By means of this public-spirited action the Committee has been able to take full advantage of the splendid offer made by the Billposters' Associations, and the poster crusade can be said to have been one of the largest billposting enterprises ever undertaken in the United

Kingdom. On the posters, as on all other literature of the Committee, some of the main facts in connection with the disease have been printed, and must by now be familiar to the man in the street.

In many other ways the Committee has been assisted, which it would be impossible to enumerate in detail. It may, however, be claimed that the Committee, in addition to collecting money, which will assist in resuscitating the National Association for the Prevention of Consumption, and will render possible a more extended usefulness in the future, has also made the facts of the disease and the name of the Association household words throughout the United Kingdom. Not the least valuable assistance which the Committee has obtained has been the assistance of the newspaper press. Practically all the important newspapers of the United Kingdom have granted space for the periodical bulletins of the Committee, and their disposition is to continue this valuable method of educating the public. Once the income of the Association is assured, there is no doubt whatever that many, if not all, of the great public services will co-operate in this educational crusade.

Conclusions and Anticipations.

Such, in brief, is the origin of the special effort which is now being made to promote a popular crusade against consumption. So far as it is possible to judge at present, everything augurs well for the success of the movement in the future. The Committee has succeeded in gathering to itself the support and sympathy of leading men in social and scientific circles. It has successfully solicited the aid of the great agencies for publicity, and if a united effort is made possible for the future, and a close co-operation can be brought about between the existing Anti-Tuberculosis bodies, it should not be long before at least the educational side of this great fight against consumption is amply provided for. If the disease be indeed, as most of us believe, the product of ignorance, such a crusade as this should go far in the direction of stamping it out by dispelling the ignorance. May I, therefore, conclude this short account of our work and objects by soliciting the aid and sympathy of the BRITISH JOURNAL OF TUBERCULOSIS and its large body of readers. Further particulars may be obtained on application to our Central Offices at 20, Hanover Square, London, W.

THE CONQUEST OF TUBERCULOSIS.

By DAVID B. LEES,

M.A., M.D., F.R.C.P.,

Consulting Physician to St. Mary's Hospital, and to the Hospital for Sick Children, Great Ormond Street.

THE annihilation of tuberculosis is the most urgent and the most important problem of medicine in these early years of the twentieth century. The returns of the Registrar-General show that at present 40,000 deaths are caused every year in England and Wales by pulmonary tuberculosis, and 16,000 more by other forms of tuberculosis. Ireland has a tubercle mortality of more than 10,000, Scotland of nearly 10,000, making a total of 75,000 deaths in the United Kingdom. France, Germany, and other countries are similarly affected. In India, as I am informed by my former house-physician, Major Leonard Rogers, F.R.C.P., F.R.C.S., Professor of Pathology in Calcutta, tuberculosis is much more common than has been generally believed. I learn from my former clinical clerk, Dr. G. L. Tuck, now Assistant Director of the Imperial Army Medical College at Tientsin, that (so far as the figures are available) tuberculosis is the chief cause of fatal disease in China. Dr. Bulloch, in his masterly Dobell Lecture,[1] has told us that in Japan tuberculosis is as common as in Great Britain. The problem is world-wide, and a successful solution would bring about results of benefit to humanity similar to, and surpassing, the results which medical science has already attained by the conquest of malaria and of yellow fever, results more important than may be expected from the new medication proposed for the eradication of syphilis.

As far as the human type of tuberculosis is concerned—and this has now been proved to be the cause of an overwhelming majority of all the cases of tuberculosis—it is evident that the key to the solution is found in its predominant localization in the lungs. If the bacillus can be successfully attacked in this region, and its development and multiplication arrested, its diffusion by means of sputum would be effectually controlled, and the infection of the intestine and of other organs would be almost entirely abolished. Sanitary and hygienic measures are of value, but they are in themselves quite inadequate. The conditions essential to success lie deeper. What is required is the recognition of the pulmonary affection in its very earliest stage in every individual case of the disease, and the prompt, thorough, and persevering treatment of this initial pulmonary tuberculosis.

[1] Delivered before the Royal College of Physicians of London, November 10, 1910.

These two conditions are by no means satisfied by present medical practice. What is immediately and urgently necessary is that every practitioner of medicine should learn how to recognize the pulmonary disease at its very commencement, and how to treat it effectually, without waiting for the appearance of bacilli in the sputum. It cannot be too clearly understood that while the detection of tubercle bacilli is useful as confirmatory evidence, the fact that no bacilli can be detected in the sputum is of no value whatever, and a reliance on such negative results has caused disaster to thousands of patients. Long before bacilli appear in the sputum (as a general rule) characteristic physical signs can be detected in the lungs, and it is the practitioner's duty to discover them. The discovery has been made possible by Sir James Kingston Fowler's careful description of the exact situations in the lungs where the tuberculous process almost invariably begins, and of the direction of spread from each of these early foci. These observations were made in the post-mortem room nearly twenty years ago, and their truth as expressions of pathological fact is recognized in the textbooks, but their value for clinical medicine has never been adequately appreciated. The facts described by Sir James Kingston Fowler can all be verified clinically by careful percussion. Unfortunately, the textbook descriptions of the earliest physical signs lay stress on auscultation chiefly, and give their readers the most vague and inadequate information with regard to percussion in early pulmonary tuberculosis. In a paper read before the Therapeutical Section of the Royal Society of Medicine, November 2, 1909,[1] I described the exact situations with regard to the thoracic wall where the earliest physical signs are to be detected by careful percussion. Over the areas of dullness thus discovered there may be little auscultatory evidence—merely defect of air-entry or the slightest catarrhal sound. The condition is a local microbic infection, producing lack of function. It is exactly similar to the condition during the first twenty-four hours of a pneumococcal invasion of the lungs, in which careful examination reveals a localized area of relative dullness, with deficiency or absence of inspiratory sound. But whereas in pneumonia the rapid multiplication of the pneumococcus quickly changes the physical signs, the much slower development of the tubercle bacillus allows the recognition of the signs above described for weeks or months.

An incipient pulmonary tuberculosis having thus been demonstrated, how is it to be attacked? Rest, warmth, abundance of fresh air and abundance of nourishment, with medical treatment of digestive difficulties, are most useful, and at this stage of the disease may be very successful. They help the patient in his fight with the bacilli, and

[1] Lees, D. B.: "The Physical Signs of Incipient Pulmonary Tuberculosis, and its Treatment by Continuous Antiseptic Inhalations," *British Medical Journal*, December 11, 1909, and the Proceedings of the Royal Society of Medicine.

by their aid he may be victorious. Yet is it not possible and desirable to do something more, to add to these useful measures some well-planned and effective attack on the bacilli themselves? Thirty years ago it was shown by Sir William Roberts, Dr. Coghill, and Dr. Burney Yeo, that inhalation of various antiseptic substances appeared to produce very decided amelioration in cases of phthisis. But the inhalations were administered like doses of medicine—so many times a day, and for short periods. Obviously, if such inhalations are to attain their maximum effect, they ought to be continuous except at meal-times. By-and-by the voice of therapeutic scepticism inquired how anyone could expect to influence a tuberculous process deep in the lungs by such means, and the objection was reinforced by a calculation of the amount of antiseptic actually absorbed from a Yeo's inhaler. The conclusion was drawn that all such inhalations were useless. Yet that excellent clinician Dr. Wilson Fox replied: "The antiseptic effect has been doubted by Hassall, *but there can be no question* that inhalations practised in this manner, with creosote, thymol, eucalyptus, iodoform, iodine, or terebene, tend to diminish cough and expectoration, and that in some cases marked improvement in the patient's state occurs during their use, even in very advanced stages." To this the bacteriologist replies that it is difficult to see how any antiseptic can be administered in quantity sufficient to arrest the growth of tubercle bacilli in the lungs without injury to the patient. The answer to this difficulty must be "*Solvitur ambulando.*" As a matter of clinical experience, it is found that, under the use of continuous antiseptic inhalation, cough and sputum are quickly diminished, the temperature soon falls to normal, there is a rapid gain in weight, the dull areas lessen, and tubercle bacilli are less easily found by the microscope, and they gradually disappear altogether. For the proof of these statements I must refer to the details of thirty incipient or early cases given in my paper already referred to, and of twenty additional cases, some of them advanced or complicated cases, narrated in a subsequent paper.[1] From the facts described with regard to these fifty cases, it seems to be sufficiently proved that the method of treatment by continuous antiseptic inhalation has certainly the power of inhibiting the development of the tubercle bacillus, and of bringing to an end the morbid process caused by it. And not only the tubercle bacillus, but that most fatal complication, a streptococcal infection of a tuberculous lung, can be dealt with successfully by this method, as proved by Case 3. And even where an acute process has caused the formation of several cavities, as in Case 23, a favourable result may be obtained. Both these

[1] Lees, D. B.: "Twenty Cases of Pulmonary Tuberculosis treated by Continuous Antiseptic Inhalation," *Lancet*, November 19, 1910.

patients are completely cured, and have been for a considerable period in full and active work.

In the employment of this treatment it is not necessary to keep the patient in bed for a long time or in a condition of enforced idleness. A week or ten days in bed is usually enough for an incipient or early case, and reading, sewing, knitting, and some games, such as chess or draughts, may be permitted. Even in more advanced cases two or three weeks in bed are often sufficient. If a longer stay is required, gentle massage should be employed. It is usually unnecessary to send the patient away from home to some special institution or to some special climate: if he has an airy bedroom and keeps his windows open, the treatment can be carried out successfully in his own house. This fact, with the absence of enforced idleness and the much smaller expense, is a very great gain. Even in very advanced cases, in which it is hopeless to expect a cure, the adoption of the inhalation treatment often gives much relief, helps to limit the spread of infection, and enables the patient to do light work for himself or others for a much longer time.

If this method of treatment were adopted for every case of pulmonary tuberculosis, and if at the same time every member of the medical profession learned to detect the earliest stage of the disease, and abandoned reliance on a negative bacteriological report, within a very few years such a conquest over tuberculosis would be achieved as seems to us now a hopeless dream.

DIRECTIONS FOR LIVING AND SLEEPING IN THE OPEN AIR.

By THOMAS SPEES CARRINGTON,
M.D.,
Assistant Secretary of the National Association for the Study and Prevention of Tuberculosis, in charge of its Bureau of Construction, and appointed Expert on Hospital Construction in the New York State Department of Health.

CONSUMPTION, or tuberculosis, is a disease of the lungs which is taken from others, and is not simply due to catching cold. It is generally caused by germs, known as tubercle bacilli, which enter the body with the air breathed. The matter which consumptives cough or spit up usually contains these germs in great numbers, and if those who have the disease spit upon the floor, walls, or elsewhere, the matter will dry, become powdered, and any draught or wind will distribute the germs in it with the dust in the air. Any person may catch the disease by taking in with the air he breathes the germs spread about in this manner. He may also contract the disease by taking into his system the germs contained in the small drops of saliva expelled by a consumptive when coughing or sneezing. It should be known that it is not dangerous to live with a consumptive if the matter coughed up by him is properly disposed of.

Consumption may be cured at home in many instances if it is recognized early, and proper means are taken for its treatment. When a member of a family is found to have consumption, and cannot be sent to a sanatorium, arrangements for taking the cure at home should be made as soon as the disease is discovered.

The following directions have been published to help persons, primarily in the United States of America, to carry out the open-air treatment in their own homes. It is believed, however, that the suggestions here presented will be of interest and service to British patients. Many families are unable to make any great change in their mode of living, and cannot afford to fit up porches and buy extra bedding or warmer clothing. A number of the suggestions given here are very simple and inexpensive, and will help those who would like to use what they have at hand in making an outfit for outdoor life.

It is important, in the treatment of tuberculosis, to breathe air that is fresh and pure, to eat an abundance of good food, to stop heavy work and worry, and to take a bodily and mental rest by lying down before and after the noon and evening meals. To obtain the first the patient must live out of doors. This means that as many hours of the day and night as possible

should be spent in the open air, and in order to carry out this treatment some place must be provided which is not only protected from wind, but also from rain and snow, as nothing except the most severe cold weather should prevent the patient from living and sleeping there. The outdoor shelter should be large enough for a bed, a reclining chair, and a table. It should overlook pleasant and sanitary surroundings if possible, as it is to be the home of the patient for months, and will give better results if comfortable and attractive.

How to Conduct the Open-Air Treatment in a Tenement House.

Tenement-house dwellers and persons living in apartment houses in large cities should make every effort possible to give the open-air

A WINDOW TENT IN POSITION, WITH PATIENT IN BED LOOKING THROUGH THE CELLULOID WINDOW INTO THE ROOM, BUT BREATHING OUTDOOR AIR ONLY.

treatment to a member of the family who contracts tuberculosis. First, consider the possibility of moving into the suburbs or near by small towns. If this cannot be done, try to obtain from the landlord the use of the roof, and build a small shack there as described on page 13. If this is beyond the means of the family, use one room with a window opening on a street or large court for the patient, and then place the head of the bed beside the window, and cover it with a window tent. The cost of a window tent is about ten dollars, and if it cannot be obtained, take two large, heavy cotton sheets, sew them together along the edge, tack one end of the double sheet to the top of the window-casing, and drop the lower end over the outer side of the bed, fastening the bottom of the sheet to the bed-rail with

tape. There will be enough cloth hanging on each side of the window to form the sides of the tent, and these should be fastened to the window-casings. A window tent can be made at home for about three dollars by using twelve or fifteen yards of heavy denim or light canvas. One straight piece of denim should be hung from the top of the window-casing to the outer side of the bed, and the openings between this and the side window-casings filled in with sides cut and fitted from the balance of the cloth. By these methods the patient gets fresh air from the window, and the room is kept warm in cold weather as a place for dressing and toilet purposes. During mild and warm weather the tent can be removed, and the window kept open both at top and bottom.

The flat roofs of tenement and apartment houses in large cities should, if possible, be used as a breathing-place by the tenants. Shacks or cabins can be built upon them at small cost, and make an economical and easily provided shelter.

How to Build a Small Shack or Cabin on a Flat Roof in the City.

Two-by-four timbers should be used for the frame, and siding boards for the back and sides. The front of the shack should face

A WINDOW TENT RAISED WHEN NOT IN USE.

slightly to the east of south and be left open, but arranged with a canvas curtain tacked on a roller, so that it can be closed in stormy weather. The shack can be built cheaply with rough boards,

and the roof covered with tar-paper or other roofing. The flat roof space in all cities and in many towns should be used for outdoor living and sleeping.

List of Material and Estimate of Cost for Constructing a Small Open-Air Sleeping Shack on a City Roof or in a Country Yard.

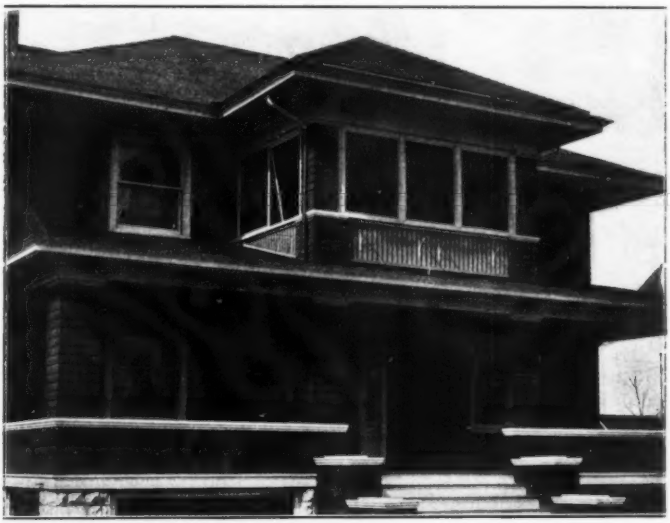
328 feet of rough lumber as follows, at $30 per M ...	$9·84
4 pieces, 2 inches by 4 inches by 12 feet, sills.	
5 pieces, 2 inches by 4 inches by 12 feet, floor joists.	
14 pieces, 2 inches by 3 inches by 14 feet, studs.	
5 pieces, 2 inches by 3 inches by 12 feet, plate.	
1 piece, 2 inches by 6 inches by 12 feet, plate (front).	
1 piece, 2 inches by 8 inches by 12 feet, rail for sliding sash.	
9 pieces, 2 inches by 4 inches by 14 feet, rafters and rafter-tails for front eaves.	
300 feet of novelty siding for walls, at $30 per M ...	9·00
250 feet of shiplap roof boards, at $26 per M	6·50
200 feet of 7-8 inch common flooring, at $32 per M ...	6·40
One-half roll "Neponset" red rope roofing, at $5 per roll	2·50
Ten pieces of 1-inch half-round for roofing, at 1 cent per foot...	1·40
One canvas curtain on roll	5·00
Four sliding sashes, 3 feet by 3 feet, at $2	8·00
One casement sash and frame, 2 feet by 2 feet, at $2...	2·00
Hardware	1·00
Strips for sliding sash	1·00
Paint	5·00
	$61·64
Labour	25·00
	$86·64

Note.—Canvas can be bought by the yard, and a curtain made at home.

How to Arrange a Porch on a House in the Country.

If the family lives in a small town or in the country, it will usually be found that a porch is the most convenient way of providing open-air quarters. In selecting a site for the porch, it is well to remember that the patient should be placed out of doors in such a way that the cure can be taken with comfort at all seasons of the year. For the winter months the best place is on the south side of the house, as there will be found the greatest amount of sunshine. If this cannot be done, choose first the east, or second the west side, but not the

north side except as a last resort, for it is a windy and cold position in winter. The back of the house is usually better than the front if the porch cannot be seen from the street, but what is of the most importance is to *find a sheltered spot protected from the wind, for the wind is much harder to bear than even intense cold*. When a house has permanent verandas, and the family cannot afford the expense of providing a special porch for the patient, the permanent veranda on any floor may be used, and privacy and protection obtained by putting up canvas curtains or bamboo screens.



A WELL-CONSTRUCTED PORCH WITH SCREENS AND AWNING PROTECTION, BUILT ON THE ROOF OF A FIRST-FLOOR VERANDA.

If a special porch for winter use is to be built, place it on the south side of the second story of the house, with an entrance into a room which can be used by the patient. For a passage-way to the porch, cut one of the windows down to the floor and put in a door 3 feet 8 inches wide, so that the bed can be rolled from the room to the porch without difficulty. If the room is not heated by some other means, a stove should be used and the air kept warm, so that the patient may have a comfortable place for dressing, eating, and to enter when chilled. Build the porch out from the door, 10 feet wide by 10 feet long, and 7 feet or more in height from floor to ceiling. Place glass and sash on the side of the porch most exposed to the weather, and hang canvas curtains on rollers to enclose the open sides

in stormy weather. Lay the floor with narrow spruce boards, using white lead and oil to fill in the cracks, at a grade of 1 inch to 5 feet, so that water will not stand during stormy weather. A porch of this kind can be built in small towns and in the country for from fifty to one hundred dollars, the cost depending upon the class of material used and the way the porch is finished.

How to Build a Cheap Porch.

A useful porch can be built for twelve or fifteen dollars with cheap or second-hand lumber, and if only large enough to receive the bed and a chair, will still be effective for the outdoor treatment. The roof can be made with a canvas curtain or a few boards and some tar-paper. The end most exposed to the wind and rain and the sides below the railing should be tightly boarded, to prevent draughts. A window can be used for the approach, but it will be more convenient if it is cut down to the floor and a small Dutch door put in below the window-sash. Second and third story porches are supported from the ground by long 4 by 4 posts, or, when small, they can be held by braces set at an angle from the side of the house.

How to Provide a Shelter for the Summer and for Hot Countries.

Consumptives need a good shelter in tropical countries, and protection during the summer months in northern climates. A porch should be placed on the side of the house where the direct rays of the sun will not strike it during the middle of the day, and tents or shacks placed under shade-trees or in the shadow of large buildings.

Awnings which jut out from the roof of a porch or shack are used for shade, and Japanese drop-curtains, made of long strips of bamboo, for privacy, as they do not stop the current of air.

In places where the streets are not watered a hose should be used to lay the dust in front of the house, and the floor of the porch or shack sprinkled once or twice each day to cool the surrounding air.

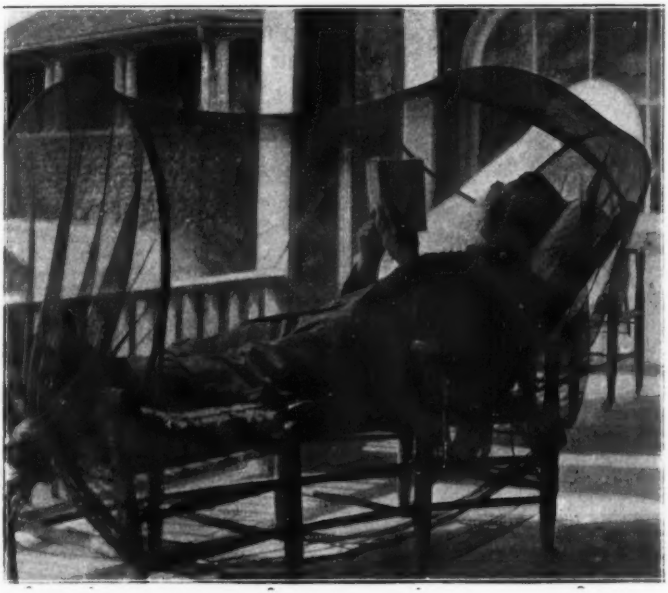
The open sides of the shelter must be screened from the floor to the roof with wire netting, as a protection from flies and mosquitoes and when this is impossible, a mosquito-bar, made of cheese-cloth, netting, or scrim, should be hung from the roof or laid over barrel-hoops attached to the head and foot of the bedstead.

Tents and Tent Houses.

Tents and tent houses can be used as a shelter in warm, dry climates, and for the summer months in northern countries; but they are not very satisfactory for winter use in cold climates.

In order to make a tent comfortable for a sick person, it should

have a large fly or double roof, with an air-space between ; a wide awning in front, where the patient can sit during the day ; a board floor, laid a few inches above the ground ; and the sides boarded up two or three feet from the floor.



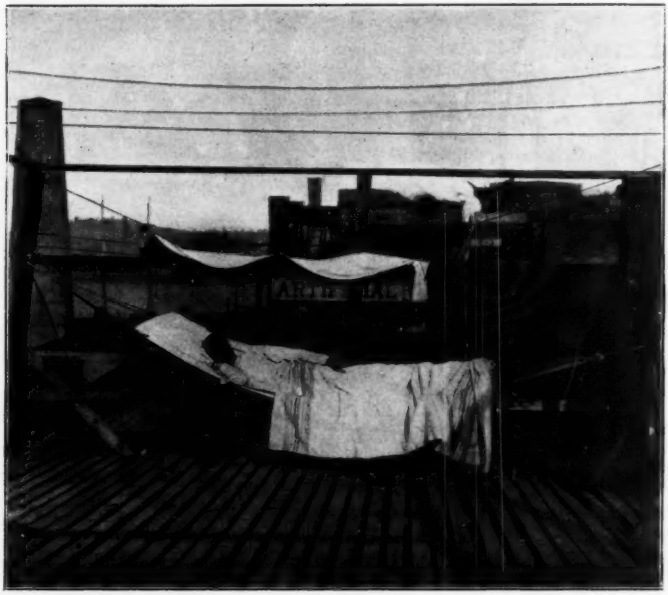
A GOOD WAY TO ARRANGE A NETTING AS A PROTECTION FROM INSECTS. NOTICE THE BARREL-HOOPS TIED TO THE BEDSTEAD.

The Bed and Bedding used in Outdoor Sleeping.

An ordinary iron bedstead, with woven wire spring 3 feet 6 inches wide and a moderately thick mattress, are all that are necessary, except for very cold weather. A bedstead which can be rolled about easily is a great convenience, and should therefore be fitted with small rubber-tired wheels or castors. A good hair mattress is most desirable ; but when it cannot be obtained, a cotton-felt mattress can be bought for as low as four dollars, or a wool mattress for about ten dollars. In northern climates, where cold weather must be expected, two mattresses, with several layers of newspaper between them, are often used. Over the mattress place an old blanket or a cotton bed-pad the same width as the mattress, and on this the ordinary bed-sheets or blanket-sheets.

Bed Covers used in Outdoor Sleeping.

Persons who like heavy bed-covering may use blankets, placing as many layers over the bed as desired for warmth. Those who cannot stand heavy covering can use down comforts, as they are very warm but light. If these are too expensive, lamb's-wool or cotton-filled comforts can be bought, or the material for wool or cotton quilts can be obtained for about two dollars, and warm, satisfactory covering



A METHOD OF SCREENING BEDS IN HOT COUNTRIES.

made in the home. Very cheap light but warm covering can be made by using paper blankets placed between two thicknesses of outing-flannel or bed-covers. These paper blankets are sold for fifty cents each, and wear for about six months. A woollen horse-blanket with an outside of canvas can be used as a covering to protect the bedding in wet and stormy weather.

Sleeping-Bags.

In very severe weather a sleeping-bag may be used for patients who are very susceptible to the cold. These bags can be bought at department stores for fifteen dollars upward, or can be made at home by sewing blankets together around the edges, leaving the top open.

In making a bag, use as many layers as may be desired, but place the same number of thicknesses on both sides of the bag. The blankets should be 7 feet long by 4 feet wide.

Arrangement of Pillows in Outdoor Sleeping.

Two pillows should be used in preparing the bed before retiring. Place them in the form of an inverted V, with the apex at the top of the bed and the head at the point where the two pillows meet. This position allows the shoulders to nestle between the two pillows and protects them from the cold wind, which will otherwise find its way under the bedclothes when the patient lies on his side or turns over.

How to Prepare the Patient for the Night.

In cold weather the outdoor sleeper should get into the bed in a warm room, and have someone roll him out of doors. When this cannot be done, use a warm dressing-gown in going back and forth from the dressing-room to the porch, and warm the bed by placing in it for a few minutes before retiring a hot-water bag, hot bricks, soapstones, or bottles filled with hot water. In some instances it is well to leave a hot stone or bottle wrapped in flannel at one corner of the bed, where it will throw off heat slowly during the night.

In tucking in the patient at night, all covers except the top blanket or comfort should be tucked in under the bed-pad which lies on the mattress. The topmost cover is then tucked under the mattress to keep the under-covers from sliding off when the sleeper is restless. This method of tucking in forms a sort of sleeping-bag with the bedclothes, known as the Klondyke bed, and prevents the cold air from reaching the body.

Clothing Worn at Night.

The night-clothes worn by the outdoor sleeper during the winter depends largely upon the strength of the patient. Some persons need much more than others, but even the weakest can usually keep warm if they have blanket-sheets and hot bottles. A woollen under-shirt, a sweater, and a long outing-flannel nightgown or bath-robe are usually worn; but in very cold weather some patients wear a pair of drawers made of flannel, a pair of bed-socks or knitted slippers, and a woollen abdominal bandage.

How to Protect the Head from Draughts.

The head of the bed should be shielded from the wind or a strong draught by placing it close to the protected end of the porch, or by covering it with a canvas hood supported on a barrel-hoop attached to the bedstead or hung by a rope from the ceiling. The patient can wear a knitted skull-cap long enough to be pulled down to the end of

the nose and over the ears, or a knitted helmet which covers the whole of the head, face, and neck, with the exception of a small opening for the nose and mouth. A hood shaped like an old-fashioned sunbonnet is very comfortable, and can be made at home from eider-down or outing-flannel by using as many thicknesses as may be needed. *Never cover the head with the bedclothes.* If the nose grows cold, use a small piece of flannel, held by elastic bands from the ears, to cover the top, or a piece of cotton held in place by a strip of adhesive plaster. Care should be taken not to interfere with the

A KNITTED HELMET FOR PROTECTING THE HEAD, NECK, AND SHOULDERS.

inhaling of fresh air, or to allow the breath, as it is expelled from the nose or mouth, to come in contact with the cloth and form icicles. Chapping of the face during the night can be prevented by using cold cream or vaseline about the nose and lips.

Clothing for Day Use.

The clothing for use during the day, when the patient is up or sitting in a reclining chair, should be of light weight, but warm. Underclothes of half cotton and wool or linen mesh, and a sweater which buttons in front, with the ordinary outer clothes, are usually worn. The overcoat for men, women, and children should be of fur, if possible, as even the cheapest of skins are warmer than any other kind of garment. If a new coat cannot be bought, a heavy cloth overcoat will give good protection, and be much warmer if it has a high, soft collar. Leather leggings and woollen tights are used as extra garments, and are a great comfort when taking exercise on cold days.

How to Protect the Hands.

Patients who wish to use their hands while sitting out of doors in cold weather can wear thin, well-fitting cotton gloves. These are used by army men, and can be bought for thirty cents a pair. Over

them should be drawn a knitted woollen glove with the ends of the fingers and thumb cut off and bound to prevent unravelling. For ordinary protection, when not at work, a heavy fur or woollen mitten should be worn, with long woollen wristlets. Never use tight gloves of any kind in cold weather, as they restrict the circulation of the blood and cause the hands to grow cold.

How to Protect the Feet.

Use woollen stockings, and if they cause irritation wear a cotton stocking next to the skin. Sometimes two or more pairs of woollen stockings are necessary in very cold weather, but they must always be large enough to fit loosely. Felt shoes are warm and light, and are much used. Soft leather shoes covered by large fur-lined leather shoes are very warm and comfortable, but are expensive, as they must be made in a set, to order. Foot-muffs should be used in sitting out during a cold day. They are made of fur or of cotton quilts sewed up like a bag, into which the feet can be placed. On very cold days the muff can be placed in a wooden soap-box with hot bricks beside it, and newspapers wrapped about the muff to fill in the empty space.

Chairs for Day Use.

An easy-chair is a great comfort to the patient during the day. A steamer chair is easily obtained and gives good service, and the canvas chair with a wooden frame can be bought for one dollar, or the cane-seat extension chair for two dollars and fifty cents up. A more durable chair is made for this purpose with an iron frame, costing about twenty-five dollars, which can be transported and used in a rough manner without danger of breakage. To prevent the cold currents of air reaching the patient from below, the chair must be covered with some thick, closely-woven, warm material. A fur rug is the best for this purpose, but several layers of blankets and newspaper will answer and are more economical.

Table for Work and Amusement Purposes.

The patient should have a table handy on which to keep books and other things used for amusement or work. An adjustable table, the top of which the patient can swing before him or away, is a great convenience, and can be used as a book-rest when the hands are under cover.

General Directions for the Care of the Patient.

The directions for the care of the patient are not intended in any way to take the place of a physician's orders. Every consumptive should consult a doctor, and these suggestions are given to help the

patient carry out his directions. Rest is a most important part of the open-air treatment, and exercise must be regulated by the doctor. Always have at hand an extra wrap, and never remain out if chilled. Cold weather should have a bracing effect, and when it does not, go into a warm room and get a hot drink, preferably milk, remaining indoors until comfortably warm. When going out again use more wraps, and keep behind a shield or screen that breaks the force of the wind. Always be cheerful and hopeful; never waste your strength in anger or by being cross. Lead a temperate life; go to bed early, and get up late; do not use alcohol in any form except when prescribed by your doctor. Do away with tobacco if possible, and use only weak tea and coffee in small quantities. Never swallow the matter coughed up, but always destroy every particle by spitting in a paper or cloth which can be burned. Never allow the hands, face, or clothing to be soiled by sputum, and if this happens by accident, wash the place soiled with soap and hot water. Men who have consumption should not wear a moustache or beard unless it is trimmed close. Particular care must be taken, when sneezing and coughing, to hold in the hands before the face a cloth which can be burned. Soiled bedclothes, nightdresses, other washable garments, and personal linen, should be handled as little as possible until they are boiled prior to their being washed. The dishes used by the patient must be boiled after each meal.

All the above means care and work, but must be done, both as a protection to the household and in order to bring about a speedy cure for the patient.

LOCAL EFFORT IN THE ANTI-TUBERCULOSIS CAMPAIGN.

By REGINALD E. STIDOLPH,
Assistant Secretary, Brooklyn Anti-Tuberculosis Society.

It is acknowledged that the rapid spread of tuberculosis is due chiefly to the ignorance of the public—ignorance of the common facts about the disease. The longer this ignorance continues, the greater will be the loss in lives and money. Therefore the chief feature of a local Anti-Tuberculosis Society should be the educational campaign. A few points as to methods and procedures found successful in the United States may prove of service to practical workers generally. In America, most Anti-Tuberculosis Societies conduct their educational

work through the following mediums: Travelling exhibits, sermons, indoor and outdoor illustrated lectures to natural groups, such as the Y.M.C.A. Fraternal Societies, Social, Political, and Athletic Clubs, Schools and Settlement Houses, and through the distribution of booklets.

Instruction classes are in charge of a physician and nurse, and are formed at the Tuberculosis Clinics, where attending patients and their friends are taught the common facts about the disease. Lately, however, one of the most progressive of the Anti-Tuberculosis Societies asked the following questions: (1) Do the exhibits, sermons, lectures, and booklets reach a fair proportion of the citizens of our town? (2) Does the twelve-hour-a-day labourer, the factory boy and girl, the hard-worked tenement mother, come to our exhibit, sermons, and lectures? *In fact, do our present mediums of education reach the class of people who need the education most?* (3) How long would the average person of intelligence be likely to remember the lesson of the exhibit, sermon, or lecture, without some sort of constant reminder? (4) Isn't it true that without a constant reminder the interest that has been aroused will die a natural death for want of stimulation?

After this self-examination, it was decided to conduct a local publicity campaign, to supplement the present mediums of instruction, and to keep the subject continually in the minds of the individual.

One example will illustrate the necessity for a wider educational outlook. One of the educational messages to the public is, *Patent medicines do not cure consumption.* What chance have we got to convince people of this fact when newspapers, magazines, chemist-shop signs, and other mediums of general publicity, are convincing, them to the contrary by continually impressing on their minds that "Father Quack's or Dr. Curem's medicines cure consumption, and we can prove it." Father Quack and Dr. Curem *do* convince the public, or they wouldn't be able to continue their advertising.

In planning a local publicity campaign, to supplement other mediums of education, and to act as a constant reminder, the first question requiring answer is: What are the best means for reaching and influencing the people? The best mediums are: (1) Those that the public have already been taught to study and believe in; (2) those that reach the greatest number of the class who need the education most; and (3) those that reach them constantly.

The next question is: What mediums of publicity are there in our town, or what mediums can be created to accomplish our purpose? Advertising spaces in tramcars, tubes, omnibuses, and railway stations; space on bridge approaches, city-controlled spaces, newspaper articles and newspaper advertisements, the back of the employee's pay envelope, wrapping-paper supplied to shops, flash signs in shop

windows, lantern slides in moving-picture theatres, all offer valuable means whereby to educate public opinion.

The concerns controlling these spaces in the town of Brooklyn were interviewed, and the work and aim of our Society explained, with the result that 25,000 dollars worth of advertising space was donated to the anti-tuberculosis cause. The cost of stock and press-work for these spaces was borne by the Society, although in some cases the printing house, when the object of the campaign was explained, gave their services gratis.

To prepare effective copy for publicity, an advertising man should be consulted, and he must be one who has spent some time in active anti-tuberculosis work. A few important points to be remembered are : Always strive for a strong, simple, convincing effect. Never use all capital letters, for they are hard to read. Don't spread the type all over the white space. It is well always to leave a goodly white margin round the display and text matter. Make your printer use but one style or "family" of type for the same advertisement. Pick out that part of the message you wish to drive home, and emphasize it by display type. In the text matter, give your reasons for this point logically and in a dignified way. Try and make the message personal. All advertisements of the Society should contain the same recognizable elements of display. An illustration that is striking, and also makes the text matter easier to understand, is a valuable asset. Try and put yourself in the place of the prospective reader, and consider what would appeal to you and convince you if you were in his place.

We need to study cumulative *results*. A local publicity campaign such as I have attempted to outline not only affords an effective way to educate most of the people *all* the time, but it has a favourable effect on public and semi-public officials when the Anti-Tuberculosis Society puts up a proposition for their yea or nay.

The success of our Society during a period of less than two years in obtaining such permanent benefits for the town as six extra tuberculosis clinics, a free dental clinic, one hundred extra beds in local hospitals, a day-camp (open all the year round, taking seventy-five patients daily), a fresh-air school for tuberculous children, a number of extra visiting nurses specially for tubercular patients, is undoubtedly due in a great measure to the publicity campaign the Society has conducted.

The patients who attended the seven clinics and the day-camp, as well as the middle class and well-to-do, who come to the Society for advice, have the same answer to the question, "Who sent you?" "We saw your exhibit," or "We saw your advertisement," is the reply.

REMEMBER

Consumption Kills One in Every Ten in This District

GUARD YOURSELF AND FAMILY AGAINST CONSUMPTION

Anything You Want to know about **Consumption**

write the

BROOKLYN COMMITTEE ON **PREVENTION** OF **TUBERCULOSIS**

Thoroughly Ventilate Your Rooms

For Fresh Air and Sunlight Kill the Germs of Consumption

Don't Spit Around the House

Consumption is caused by Careless Spitting

Breathe Deeply and Slowly

To enable your lungs to resist the Germs

Burn All the Garbage You Can

And keep what's left under cover

Before Moving Into An Apartment

See that it is Disinfected, for a Consumptive may have lived there

69 Schermerhorn St., Brooklyn, N. Y.

POSTER, 42 INCHES × 36 INCHES, DISPLAYED ON ALL ELEVATOR STATIONS IN THE CITY. THESE ARE CHANGED EVERY SIX MONTHS. THE POSTER ILLUSTRATED WOULD BE STRONGER IF THE WORDS "FOR FREE BOOKLET" WERE SUBSTITUTED FOR "ANYTHING YOU WANT TO KNOW ABOUT CONSUMPTION."

SOME EFFECTS OF THE CONSTANT CURRENT UPON TUBERCLE BACILLI IN FLUIDS.

By CHARLES RUSS, M.B.,
Assistant Pathologist, Laboratories of Pathology and Public Health.

The effect of electric currents upon bacteria has been studied by various observers, and receives brief notice in several textbooks under consideration of forces not in use in routine laboratory work, such as the effects of light, of great cold, of ultra-spectral rays, and so on. The earlier experiments with currents traversing fluid bacterial suspensions or cultures had a lethal object, doubtless with the object, if electricity proved a potent germicidal agent, of electrolyzing water-supplies and removing the possibility of water-borne disease at the source, or at least the service centre. Water, of course, is practically a non-conductor, and since the addition of salts is necessary for conduction of current, no such germicidal effect, if it were facile in application, would be available, since chemically treated water is useless for a town supply.

In my experiments, which are so far quite embryonic, the effect of currents was observed upon bacteria suspended in fluids. Here, again, for conduction of electricity, chemical salts or electrolytes are necessary, and when these are present—salts of sodium, for example—one observes a movement of the organisms towards one of the electrodes, usually the anode. The common pathogenic species were swept from surface agar growths into distilled water, making strong emulsions, and a few drops of the emulsion added to the common salts of the alkalies arranged in a series of **U**-tubes furnished with a platinum-foil electrode in each limb. The type of effect was as follows: After a small constant current of 2 or 3 milliampères has traversed the tube for a short time, the bacteria-clouded fluid will be noticed to become denser under the anode if the colon bacillus be used, and as the action continues the aggregation grows until about three-quarters of the tube is bacteria-free, and the organisms are densely massed under the platinum-foil electrode forming the anode.

If at this juncture the current be cut off and the tube and apparatus is simply left alone, the column of aggregated organisms will, so to speak, contract and effect a closer massing under the anode than occurs during continued electrolysis. This effect occurs with living or dead organisms, and apparently the electrode sought by the bacterium depends upon the nature and composition of the dissolved electrolyte for one and the same species of organism. It also appears

that certain bacteria refuse to move to either electrode in certain electrolytes, and yet migrate to the anode in one and the kathode in another electrolyte.

The behaviour of the tubercle bacillus was especially, but by no means fully, studied in my experiments with a view to utilization of this movement. It appears to be a comparatively inactive organism, and in view of the probable nature of the movement being a chemical affinity between the ions or charged atoms of the chemical used and the bacillus, this inactivity is not unexpected, considering its cultural inertia and comparative indifference to the ordinary staining reagents.

An affinity was observed, however, between the ammonium salts and the substituted ammonias or amines, and by using ethylamine in acid solution, the tubercle bacillus was driven to the kathode, and recognized by stained films prepared from the fluid at the negative pole, while no bacilli could be seen in a similar film from the anode limb. By substituting a glass tube in which the kathode was concealed, tubercle bacilli were drawn from known tuberculous urine into the glass tube, seeking the kathode, and the bacilli recognized in stained films prepared from the fluid inside the glass tube (the tuberculous urine having been previously mixed with the specific electrolyte). While using the chemical affinity indicated above as a working theory of the cause of the effect, it must be remembered that the electric charge upon the moving ions is also a factor in producing the movement.[1] The uses to which this force may be applied are :

1. From a laboratory standpoint. If this movement be an expression of a chemical affinity for the atoms of the electrolyte (which are known to move to each electrode), then it should be possible to find a series of chemicals in which different bacteria will show differences of behaviour (by movement or stasis when electrified), and such differences would be evidence of identity.

2. The current is apparently a delicate detective agent in cases in which a few bacteria—viz., tubercle bacilli—are present in a fluid, and the application for extracting bovine tubercle bacilli from tuberculous milk is at present engaging attention, since, if successful, they should be found in films and obviate the long delay before inoculation results are available.

[1] The form of apparatus employed in these researches I have illustrated elsewhere. See "The Electrical Reactions of Bacteria applied to the Detection of Tubercle Bacilli in Urine by Means of a Current," *Lancet*, July 3, 1909. The apparatus was also exhibited in the Museum of the British Medical Association, 1910.

IMPRESSIONS OF THE INTERNATIONAL TUBERCULOSIS CONFERENCE, BRUSSELS, 1910.

By NATHAN RAW,
M.D., M.R.C.P.,
Physician, Mill Road Infirmary, Liverpool, and Member of the International Committee for the Prevention of Consumption.

The International Conference held in Brussels from October 2 to 7 was undoubtedly a very great success, from both the scientific and the social point of view. It was attended by a great many men and women who were deeply interested, both scientifically and socially, in the great problem of the prevention and treatment of tuberculosis. Great Britain was represented by Professor Sims Woodhead, Dr. Theodore Williams, and Dr. Nathan Raw, as delegates from the Council of the National Association for the Prevention of Consumption. Dr. Jane Walker read a paper and took part in the discussion. A notable feature of this year's Conference was the introduction into the official programme of a special section devoted to the work which women can undertake. The experiment proved a brilliant success, and the number of papers which were read by ladies of many nationalities testified to the enthusiasm with which this new departure was received. The social part of the Conference was most generously arranged, and the number of receptions and other functions was a great testimony to the hospitality and kindness of the ladies of Brussels. I am sure that every person who attended the Conference thoroughly enjoyed the visit to Brussels, and was only sorry when the time came to depart. The fact that the Exhibition was in full swing also assisted in the recreation and pleasure of the members after the official work of the Conference was concluded for the day.

Amongst the numerous questions which were discussed was one by Professor Arloing, "A Contribution to the Study of Conceptional Contagion of Tuberculosis and of Predisposition to Tuberculosis." His conclusions were as follows :

1. Consumptives seldom communicate the tuberculosis to their descendants through their conceptional life.

2. On the contrary, they often transmit to them a certain functional debility which renders them accessible to the various causes of lethality, or which retards more or less their development.

3. The influence of the ascendancy on the products is manifesting itself particularly when the tuberculosis is raging in the mother, or

simultaneously in the mother and father. It is much less important in cases in which the father alone is consumptive.

4. It is difficult experimentally to prove a real native or hereditary predisposition to tuberculosis.

5. However, the descendants of consumptives are more sensitive than other subjects to certain effects of tuberculization, and are showing, more frequently than children born of normal parents, a notable proportion of agglutinine in the blood-serum.

6. The question relative to the predisposition to tuberculosis requires new researches before it can be solved.

A very interesting discussion followed this paper, and the result was to finally dispose of the theory of hereditary tuberculosis. The general tendency, however, was to agree with the opinion of the author in believing that there was some special tendency towards tuberculosis in those children who had tuberculous parents.

A very interesting paper was read by Professor Landouzy of Paris, the title of which was, "The Reference to Congenital Tuberculous Infection." This paper was a very able exposition of the French view with regard to this much-discussed problem, and a great many of the speakers found themselves in general accord with him. Some opposition was expressed, especially by German speakers, but there was really no serious difference of opinion. His chief conclusions were as follows: "These constitutional conditions inherent to the children of consumptives, and which I brought into parallel in 1888, with the high mortality raging amongst the conceptional products of wives of consumptives, are showing themselves in the facies and the habitus of these degenerated ones. The latter are creatures who have come into the world too soon, with a feeble weight and a tiny body; a narrow, thin skeleton; a flattened thorax; a soft and delicate skin, slender limbs, a pale, sickly face, transparent veins, a prematurely developed hair-growth, long eyelashes, frequently swelling glands, a sickly aspect, etc."

The finding of such constitutional conditions as these, which bacillary generators are often transmitting to their offsprings, and the existence of which caused the ancient medicine to accept the doctrine of a tuberculous diathesis, proves to what extent the tuberculous virus is acting by way of heredity.

On the following day, October 7, the Conference was devoted to the important question of "The Protection of Children against Tuberculosis." The discussion was opened by Dr. Bielefeld with a very able paper. The following is a short abstract of the more important points:

1. If, as is supposed by medical authorities, the tuberculosis is contracted principally in infancy, it is necessary that the measures to

be taken in order to protect the children should, above all, include the keeping away from the latter of adults who are suffering from tuberculosis.

2. Experience shows that, as regards particularly dangerous adult members of a family, this object cannot be easily reached except in a compulsory manner.

3. The compulsory legal transfer to a closed establishment of the kind existing in Norway of consumptives who are a danger to their surroundings, although desirable from the point of view of hygiene, can only seldom be effected by way of legislation, because the prevailing humanitarian ideas are opposed to such steps.

4. The workmen's insurance admits of at least an indirect compulsion, inasmuch as consumptive people who are entitled to a rent are offered, instead of the latter, the alternative of being admitted to a home for invalids, and in case they do not accept this offer are threatened with withdrawal of payment of the rent.

5. In order to avoid unnecessary harshness, which is contrary to the popular sentiment, the non-payment of the rent might, in such cases, be made subject to the opinion of a local sanitary tribunal, and the decision relative to the withdrawal might be arranged subject to being cancelled later on.

Other papers were read by Brück of Berlin, Hanssen of Norway, Romer, Schlossmann, and Nathan Raw, and a very long and interesting discussion followed the papers. It was generally considered that the protection of children was one of the most important features in this fight against tuberculosis, and it was referred to the next Conference for further and more detailed discussion.

An interesting paper was contributed by Dr. Karlsson of Stockholm on "Measures taken against Tuberculosis amongst the Pupils of the Primary Schools in Stockholm." At the Tuberculosis Conference in Stockholm in 1909, an account was rendered of an inquiry as to the frequency of tuberculosis amongst the pupils of the primary schools in Stockholm. On that occasion it was also mentioned that a committee was already engaged in devising means in order to arrest the disease. As this committee have not yet finished their work, we are not in a position to make a full statement relative thereto, but we may now mention some of the measures of prophylaxy taken in Stockholm. One of the most important of these is, without doubt, the nourishment of poor children during the time they visit schools. The Common Council has voted a sum of 70,000 crowns a year in order that poor children who are insufficiently nourished at home may get a substantial meal in the middle of the day, and in several primary schools they are also given breakfast, consisting of milk and bread. On the other hand, the municipal authorities and others have granted funds in order to permit of the children making a stay in the

country during the summer; out of 26,000 children visiting the primary schools in Stockholm, about one-half were benefited by this arrangement during last summer. School baths are fitted up in all the primary schools, and the attendance in same is perfect. For children afflicted with tuberculosis the town of Stockholm actually keeps at disposal a great number of places: 80 in the Hospital for Consumptives in Soderby, about 70 at the Princess Marguerite's Home, 20 in Morsel's Sanatorium (Jemtland, Alpine region), and about 10 in the Hamra Sanatorium.

This paper caused a considerable amount of thought and reflection on the part of the delegates present, as showing the pioneer work of Sweden in this special branch of the problem, and it was generally considered that other countries would have to fall into line with the excellent work which was being done there. The last afternoon of the Conference was reserved for a special séance, "The Campaign against Tuberculosis and the Women." The following ladies submitted papers, all of which were of a highly interesting and valuable character: Mesdames Altschul of Paris, Annemanns of Brussels, Beschorner of Dresden, Chaptal of Paris, Girard Mangin of Paris, Mugdan of Berlin, Pannwitz of Berlin, Pischinger of Lohr, Possaschnaia of St. Petersburg, Pynappel of Zwoole, Rabinowitsch of Berlin, Sommer of Bern, Dr. Jane Walker of London, and Mrs. Nathan Raw, Liverpool. The meeting was very fully attended, and the general opinion of the Conference was that the special work undertaken by the ladies in different countries would have a far-reaching effect in stimulating public opinion with regard to the importance of organized effort in the prevention of tuberculosis. There can be no question that in all future Conferences the work of the women will play a most important part, more especially with regard to the disease in children and females. Other papers were read on a variety of subjects relating to Prevention and Treatment of Tuberculosis.

On Saturday a final meeting of the Conference took place, when the reports of the various commissions were submitted and approved. A number of new commissions of inquiry were appointed, the work to be submitted at the next Conference, to be held in Rome in 1911.

On Sunday this pleasant Conference was brought to a close by a long motor excursion from Liége, visiting the Sanatorium Borgoumont and the sanatorium at Namur. A visit was then paid to Spa, where the Conference was most hospitably entertained to dinner in the Grand Hotel. After a visit to the baths the whole party motored back to Liége and thence by train to Brussels, thus completing a most delightful day, and ending a most useful and enjoyable Conference. The next Conference will take place at Rome in September, 1911.

CRITICAL REVIEWS.

SANATORIUM TREATMENT IN PULMONARY TUBERCULOSIS.

By F. RUFENACHT WALTERS,
M.D., M.R.C.P., F.R.C.S.,
Physician to the Crooksbury Sanatorium.

The Results of Sanatorium Treatment.

A CORRESPONDENCE has been occupying the pages of some of our medical journals as to the value of sanatorium treatment. Originally started by a criticism by Professor Karl Pearson of a statistical inaccuracy in Latham and Garland's recent book,[1] it rapidly grew into a criticism of sanatorium methods in every shape and form. The issues, unfortunately, have been much confused: whether modern methods of treating consumptives are better than those of former years; whether there is statistical evidence of such superiority; whether they can be depended upon in this country; whether, and under what circumstances, special institutions are necessary for the purpose; which measures are essential, and which of secondary importance; and how far other, and perhaps newer, measures are needful.

It has been assumed by some that if open-air treatment cannot be shown statistically to lengthen the lives of consumptives, it is of no value. By the same test half the modern improvements in medicine and surgery might be proved to be useless. It is especially difficult to prove a point statistically unless the material and the remedy are both clearly defined. Consumption is of all degrees, from conditions which get well of themselves to such as are sure to end speedily in death, and open-air or sanatorium treatment is almost equally variable. Some of the correspondents have stated that only slight cases are admitted into sanatoria.[2] This is certainly not true of many British sanatoria, for patients are not sent in there, as a rule, unless they have begun to do badly or have had a relapse, or unless the conditions of home life are exceptionally bad.[3] Sanatorium statistics in which all

[1] Latham, A., and Garland, C. H.: "The Conquest of Consumption: An Economic Study," London, 1910.
[2] Wilkinson, W. Camac: *Brit. Med. Journ.*, July 2, 1910; Macdonald, B. F. P.: *Lancet*, July 2, 1910.
[3] Prest, E. E.: *Brit. Med. Journ.*, September 24, 1910.

degrees of severity are thrown together indiscriminately[1] are of very little value, as prognosis depends largely upon the degree of constitutional disturbance, as well as on the damage done to the lungs and other organs before arrest.[2]

Professor Pearson has shown that sanatorium statistics are not as accurate as they should be;[3] but statistics compiled in accordance with his prescription, showing the comparative death-rate among those who have and those who have not undergone sanatorium treatment, would give no indication of the value of such treatment unless the material were classified and the after-conditions of life were taken into account. It would be as reasonable to estimate the value of digitalis in heart disease by the death rate of those cardiacs who had and those who had not once taken a course of digitalis. Patients only exceptionally stay in a British sanatorium until there has been time to arrest the disease, so that the treatment consists of a short course in a sanatorium, followed by a long period of more or less imperfect open-air treatment. Most of the relapses result from too early return to the old conditions of life,[4] so that the old causes produce the same result as before. As tuberculosis attacks chiefly those who are constitutionally susceptible, recovery is necessarily conditional, just as in rheumatism, gout, or heart disease.

The Value of Clinical Studies of Tuberculosis.

The value of the modern methods can be much better gauged by clinical than by statistical evidence, and a few months spent in a good sanatorium will soon convince the impartial observer of the efficiency of these methods within certain limits. "The open-air treatment of phthisis, intelligently carried out, is an immense advance on former methods."[5] To quote Dr. S. Vere Pearson: "Personally, I cannot understand how anyone who really knows what is comprised in the sanatorium open-air method of treatment could possibly fail to appreciate it, even though he saw partial failure or death follow such treatment in many a case. . . . It has aptly been called 'systematized common sense.'"[6] Dr. Paget Tomlinson says: "Nothing in the whole range of medical practice has impressed me so much as the contrast between the impotent, not to say injurious, treatment of consumptives in the old days and the hopeful and satisfactory results of the present open-air methods wisely carried out."[7]

[1] Guy, J.: *Brit. Med. Journ.*, July 23, 1910.
[2] Walters, F. R.: *Ibid.*, August 13, 1910.
[3] Pearson, K.: *Ibid.*, June 18, 1910; July 2, 1910; August 27, 1910; September 24, 1910.
[4] Campbell, Thomas: *Ibid.*, August 6, 1910.
[5] Gordon, W.: *Ibid.*, August 20, 1910.
[6] Pearson, S. Vere: *Ibid.*, August 20, 1910.
[7] Tomlinson, P.: *Ibid.*, July 13, 1910.

It would be a great misfortune if the open-air treatment were only applicable abroad. Fortunately, on the testimony of many who have first-hand experience of it in this country, it can be employed here with the greatest advantage in many cases. The balance of evidence is very heavily against Dr. Dutton, when he preaches the dangers of night air and of the damp air of this country, and the superior benefits of warm, closed rooms.[1] Dr. Collier,[2] Dr. Pakes,[3] Anglo-Colonial,[4] and others, have dealt fully with his fallacious arguments from birds and beasts, and one suspects that he has been unfortunate in his choice of subjects or in the sanatoria where they were treated. For most patients the open air has no terrors here, provided they have sufficient clothing and protection against wind.[5]

Whether treatment should be carried out in a sanatorium or not depends greatly upon circumstances, chief of which is the pecuniary position of the patient. Just as in a hospital more complete arrangements are possible for treatment at a lower cost, so in a sanatorium. Other advantages are, more systematic treatment, more suitable buildings and situation, and the personal influence and attention of one who is of necessity a specialist, and who is able to give his whole time to the problem.[6] Sanatorium treatment is not merely stuffing and exposure to fresh air, but a graduated course of treatment and training designed to raise the resistance of the body to the disease.[7] Sanatoria are, unfortunately, not all equally efficient, and it is to be feared that the inefficient have given a bad name to all. "If the value of any particular institution be educative rather than curative, we may justly infer that the cases it deals with are far too advanced; that it is under-staffed and the patients do not have the constant supervision which is essential; or that the sanatorium is controlled by a pessimist."[8] One writer tries to show the uselessness of sanatoria by excluding all measures or remedies which can possibly be used elsewhere.[9] A similar argument would prove the uselessness of all hospitals, hotels, or even houses.

To anyone acquainted with open-air sanatoria it sounds downright ludicrous to read remarks about the horrors of sanatorium treatment, and of patients detained in them against their wills.[10] No such sana-

[1] Dutton: *Brit. Med. Journ.*, August 13 and 27, 1910.
[2] Collier: *Ibid.*, September 7, 1910.
[3] Pakes: *Ibid.*, August 20, 1910.
[4] Anglo-Colonial: *Ibid.*, September 3, 1910.
[5] See also W. Gordon, *loc. cit.*
[6] Wilson, Horace: *Brit. Med. Journ.*, September 24, 1910.
[7] Wethered, F. J.: *Lancet*, April 9, 1910; Pearson, S. Vere: *Loc. cit.*; Pakes, A. E. H.: *Loc. cit.*; Thomson, Hyslop H.: *Brit. Med. Journ.*, August 6, 1910; Jepson, Edward: *Ibid.*, September 3, 1910.
[8] Thompson, Campbell: *Brit. Med. Journ.*, August 6, 1910.
[9] Hambleton, G. W.: *Ibid.*, September 3, 1910.
[10] See "One who has suffered," *ibid.*, September 17, 1910.

torium could afford to keep a single discontented patient against his will. That some sanatoria for the poor have been, and are, needlessly expensive is no argument against sanatoria as such.[1] They should, however, be linked up with suitable health colonies here and abroad.[2] Sanatoria are very useful from a preventive point of view, so that it is beside the mark to call for preventive measures instead of sanatoria.[3] To run down sanatoria, and advocate tuberculin,[4] or continuous inhalations,[5] or other methods instead, is not wise. Useful as many of these remedies are, there is no proof that they permanently prevent reinfection in the predisposed, and they are far more useful combined with sanatorium treatment than alone. So long as there are townsfolk liable to consumption, and the present conditions of town life continue, so long will it be necessary to provide sanatoria for many of them, both here and abroad, where they may receive the latest and most efficient medical treatment under adequate hygienic conditions, and learn to keep the body healthy after recovery.

MILK AND TUBERCULOSIS.

By HUGH A. MACEWEN,
M.B., LL.B. (GLASGOW), D.P.H. (LOND. AND CAMB.), F.R.S.E.,
Medical Officer of Health for Fife and Kinross.

At the present day, when a genuine attempt is being made to check the spread of tuberculosis, it is very important that definite information be obtained as to the manner in which the disease is acquired by man. Opinion on this subject divides itself broadly into two sections, one of which believes that inhalation of the germs directly into the lungs plays the more important part, while the other looks upon ingestion as the method by which the tubercle bacillus most frequently gains access to the body.

It is obvious that the adoption of one or other view will greatly modify the method of fighting the disease. If the inhalation theory is correct, then present-day preventive methods, by protecting mankind from infection from phthisical patients and especially from their sputum, will prove effective. If, on the other hand, the ingestion theory is correct, then other methods must be adopted, and the milk

[1] Porter, Frederick: *Brit. Med. Journ.*, July 2, 1910.
[2] Jepson, Edward: *Ibid.*, September 3, 1910.
[3] Macdonald, Bouverie F. P.: *Lancet*, July 2, 1910.
[4] Wilkinson, W. Camac: *Brit. Med. Journ.*, July 2, 1910; E. M.: *Ibid.*, September 24, 1910.
[5] Garry, T. Gerald: *Ibid.*, September 3, 1910.

from tuberculous cows must be looked upon as a source of great danger. For ten years now there has been much dispute on the subject, and even to-day authorities are by no means agreed upon the many aspects of this very important question.

At the London Congress on Tuberculosis in 1901, Koch expressed the opinion that bovine tuberculosis was scarcely, if at all, transmissible to man. Since then a great deal of experimental work has been done.

It is now generally recognized that the organism which produces the disease in cattle and in man is essentially the same, though the bacteriologist claims, by means of minor characteristics, to be able to differentiate the one from the other. Thus, for example, it would seem that the bovine bacillus is as a rule of a more virulent type than the human bacillus. It is probable, however, that there is only one tubercle bacillus, but that the conditions under which it grows may modify its characteristics and reactions.

Another question that sometimes arises is, Can pulmonary tuberculosis or consumption be caused by drinking tuberculous milk? It may seem strange that the tubercle bacillus should gain entrance to the lungs by way of the stomach or intestines. Research, however, proves conclusively that such a mode of entrance may take place.[1] Behring, indeed, believes that most pulmonary tuberculosis is contracted in childhood from drinking tuberculous milk, though the disease may remain quiescent for years, manifesting itself in later life as a result of the individual becoming run down in health or from some other cause.[2]

The British Royal Commission appointed to inquire into the relations of human and animal tuberculosis state in their second interim report, issued in January, 1907, that:

"There can be no doubt but that in a certain number of cases the tuberculosis occurring in the human subject, especially in children, is the direct result of the introduction into the human body of the bacillus of bovine tuberculosis; and there can also be no doubt that in the majority at least of these cases the bacillus is introduced through cow's milk. Cow's milk containing bovine tubercle bacilli is clearly a cause of tuberculosis, and of fatal tuberculosis, in man.

"A very considerable amount of disease and loss of life, especially among the young, must be attributed to the consumption of cow's milk containing tubercle bacilli. . . .

"Our results clearly point to the necessity of measures more

[1] Ipsen: *Berlin. Klin. Wochensch.*, p. 791, 1906; Calmette and Guerin: *Ann. de l'Inst. Past.*, xx., p. 354, 1906; Zwick: *Zeitung für Fleisch und Milch Hygiene*, xvii., p. 69, 1906.

[2] Behring: "Tuberkuloseentstchung, Tuberkulosebehämpfung und Säuglingsnahrung," Berlin, 1904; Behring: *Berlin. Klin. Wochensch.*, pp. 233, 237, 689, 1903.

stringent than those at present enforced being taken to prevent the sale or consumption of such milk."

It is now generally admitted that the milk from tuberculous cows is undoubtedly a source of danger to those who consume it. There still exists much difference of opinion, however, as to the extent of such danger.

It is stated, for example, that though tuberculosis is common among nations drinking cow's milk, it is also common among some nations that do not use cow's milk as food. The people in Japan and Turkey are said not to use cow's milk, and yet they suffer from this disease.[1]

While in San Francisco, I was informed by a member of the medical profession who had practised long among the North American Indians that tuberculosis was entirely unknown among them until they began to use cow's milk.

Again, it is stated that, though tuberculosis among cattle has been on the increase for the last twenty-five years, tuberculosis among men has been steadily on the decline during the same period. The latter part of this statement, though probably partially true, would require to be accepted with caution, as it is only in recent years that a reliable test for tuberculosis in cattle has been introduced. The earlier statistics cannot, therefore, be regarded as reliable. The decline of human tuberculosis has, of course, been due to improved hygienic conditions. It should be noted, however, that there has been little decrease in the intestinal tuberculosis among children—a form which more than any other would naturally be attributed to milk.

It is striking also that of the 60,000 persons who die annually from tuberculosis in this country, 11,000 should be children under five years of age—*i.e.*, 11,000 deaths in that section of the community that depends most upon milk for its nourishment.

It is often stated that tubercle bacilli are incapable of producing the disease in man unless ingested in large numbers. As infected milk is generally diluted with uninfected milk, and as the number of bacilli will generally be greatly reduced in number thereby, many authorities believe that the danger of contracting tubercle from milk is very slight. It is probable that quite the contrary is the case, and that the mixing of milk containing tubercle bacilli with wholesome milk renders the whole mixture infective. That this is the case was demonstrated in certain parts of America, where pigs fed with a mixture of milk containing living tubercle bacilli and wholesome skim milk became infected with tuberculosis ; the dilution did not prevent them from contracting the disease, which continued to spread until a law was passed prohibiting the feeding of swine with factory

[1] Hayman : *Zeit. für Hygiene*, xviii., p. 45, 1905.

skim milk containing any living tubercle bacilli, no matter how few in number.

The amount of tuberculous milk consumed in the United Kingdom must be very great. Delepine, speaking of the results obtained in Manchester, says that 21·2 per cent. of the farms and 28·3 per cent. of all the cows supplying milk to Manchester have at one time or another been tuberculous. Speaking generally, the same author says: "One can say, without exaggeration, that there are few herds of more than ten cows that do not include one or more tuberculous cows."

In the light of scientific knowledge, milk must be regarded as one of the great factors responsible for the spread of tuberculous disease among human beings. If the public could be supplied with milk entirely free from tubercle bacilli, an enormous stride would have been taken in the direction of ridding mankind of this disease.

PERSONAL OPINIONS.

CONSUMPTION AND THE POOR LAW.

By HARRY ROBERTS,
Member of the Mile End Board of Guardians.

According to different estimates, the cost directly involved in the treatment of consumption by Boards of Guardians amounts to from one-tenth to one-seventh of the total expenditure under the Poor Law. Up to now, Boards of Guardians, who are only just beginning to free themselves from the old notion that their sole duty was to deter the poor from applying for any form of communal help, have been accustomed to treat their tuberculous cases in one of two ways: (1) Either to afford them medical and possibly other assistance in their own homes, where they not infrequently succeed in transmitting the disease to the other members of their household; or (2) to admit them into the infirmaries, and keep them there incarcerated until they either die or discharge themselves to die at home.

To anyone familiar with even the less optimistic statistics of sanatoria, as well as to anyone who realizes the great danger of infection where no precautions are taken, and where the homes are ill-kept, ill-ventilated, and poverty-stricken in every way, the futility and lack of science and humanity must be obvious. I desire to suggest what I consider to be the right line of action for Boards of Guardians. In the first place, so far as tuberculosis is concerned, they must absolutely give up their notion of deterrence. Instead of doing their utmost to prevent a man suffering from consumption from seeking treatment until physical work has become an absolute impossibility, they must do all they can to encourage the early case to put himself in their hands. The ordinary working man with a cough puts off medical treatment because he knows that it will probably involve his giving up work, and this he is totally unable to afford. Boards of Guardians, therefore, must reckon it as part of the course of treatment to give such assistance to the family of a consumptive man while he is under treatment as shall remove that great obstacle to the cure of consumption among the poor. I suggest that each Board of Guardians should provide itself with a thoroughly efficient open-air sanatorium, constructed on the most economical lines. The open-air shelters, each 12 feet square, constructed of wood and canvas, freely open on all sides, used by Dr. Lyster at Great Baddow in Essex, are thoroughly

efficient, strong, and comfortable, and can be built for £10 a-piece. They conveniently house two beds. A larger shelter on the same line makes an admirable day-room. Construct a sufficient number of these, erect a convenient house for two or three nurses and three or four maids, and a couple of cottages for men employees, and you have an excellent sanatorium for early and second early cases. A resident medical officer, though desirable where the sanatorium is of any size, is by no means an essential. Arrangements can easily be made with the Poor Law medical officer of the district to visit the sanatorium daily, and telephonic communication might link the sanatorium with his private house. Suitable land for sanatorium purposes can be purchased at low prices in most parts of England, and an efficient sanatorium on these lines could be established for £2,500 to £3,000, which sum would include land, buildings, and furnishing for fifty patients and the necessary staff. For about half that sum a sanatorium for twenty patients might be constructed.

I think it very important that a reasonable amount of land should be purchased—where practicable not less than half an acre per bed—for the ill effects of the lazy life common at sanatoria are more than usually injurious where people whose living depends on their working capacity are concerned. Graduated work, for all improving cases, should lead each case back by degrees to full potential working capabilities. A sufficiently long stay to bring about a complete cure would be in most cases impracticable ; nor is it absolutely necessary, providing that full opportunity is taken to educate the patient in the principles of the home treatment of consumption, and in the steps to be taken to avoid infecting others. In rural and semi-rural districts, indeed, the stay at the sanatorium need be only sufficiently long for the education of the patient in these principles and rules. This also applies in a lesser degree to a very large number of those who live in the outskirts of large towns, where little back gardens are pretty common. Those living in still less favourable conditions will need a much longer stay, and everything should be done to get them into hygienically better surroundings when they leave the sanatorium.

Nor will the duty of the Guardians end when the patient leaves the sanatorium. The whole value of the thing will be nullified if the man returns to the old conditions and habits of life mainly responsible for the original outbreak of his disease. Where even the smallest backyard or flat roof is available, a simple shelter 7 feet by 5 feet (costing about £2 to put up) should be lent, and all further assistance made conditional upon his sleeping in the shelter, and on his carrying out the precautions prescribed. So far as possible this subsequent assistance should take the form of milk and other nourishment, though where a little money allowance weekly will enable him

to occupy more suitable premises, it will be a penny-wise policy to withhold it. Advanced cases may quite well be treated in special wards of the infirmary. Where, however, they decline to come in, home relief, medical or otherwise, should be made conditional on the patient occupying a room by himself, and on the scrupulous observance of precautions against spreading the disease.

Any relief should be sufficient to enable these conditions to be followed. Such a scheme as I have suggested, while adding very little, even in the initial stages, to the annual expenses of the Guardians, would, I am convinced, in a very few years, be a source of enormous saving, both in money and lives.

COLOUR TYPES IN TUBERCULOSIS.

By J. PENN MILTON,
M.R.C.S. ENG., L.R.C.P. LOND.,
Medical Superintendent of the Udal Torre Sanatorium.

It is interesting to note the temperament, mental condition, and colour (eyes and hair) of patients suffering from pulmonary tuberculosis. By temperament and mental condition I mean the stand each patient takes as regards sanatorium treatment. I divide patients into four classes: 1. Complete passivity, or no resistance to treatment. 2. Slight passivity, or slight resistance to treatment. 3. Non-passivity, and showing resistance to treatment in some form—*i.e.*, against food, fresh air, discipline, or other details which go to make up sanatorium treatment. 4. Uncertain.

Primarily there are two distinct types: 1. Those with all grades of colouring of brown hair and brown eyes (including green eyes). 2. Those with all grades of colouring of fair hair and blue eyes (including violet and grey eyes) and black hair with blue eyes.

Those patients showing resistance to treatment have generally the fair-hair-blue-eye combination. Those showing no resistance in the majority of cases have the brown-hair-brown-eye combination.

With regard to the stages of the disease in each individual case, I have found them equally divided over the four classes. I would, however, emphasize the fact that the largest proportion of the worst and longest standing cases is in the brown-hair-brown-eye combination.

I have also noted in Class 3 (resistance to treatment) that those patients who lose ground lose it very rapidly—much more rapidly, in

fact, than in the patients of Classes 1 and 2, which comprise those showing little or no resistance to treatment—and that what progress those in Class 3 make towards recovery is, as a rule, equally slow, the reverse being the case in Classes 1 and 2.

It is a curious coincidence that in Class 3 the majority of the cases are of the fair-hair-blue-eye combination, and that in Classes 1 and 2 they are of the brown-hair-brown-eye combination.

I believe that it will generally be found that those with brown eyes and brown hair usually respond better to treatment, cure better, and outlive as a rule those of other colour combinations. There are, of course, exceptions to the brown-hair-brown-eye combination not resisting treatment, as there are of the fair-hair-blue-eye combination resisting treatment; but this former combination seems endowed by Nature with some particular antagonism to withstand longer the acute ravages of pulmonary tuberculosis, as in the majority of instances where patients of this type have shown resistance to treatment they are old chronic cases, at the end of their tether, and have given up all hopes of becoming cured. The same cannot be said of the fair-hair-blue-eye combination.

There is a type which I call uncertain (Class 4) in their attitude towards treatment, which consists of the very fair hair and the very blue eye combination. Usually I have found them amenable, and they do the treatment excellently—the female more than the male. Even in this class, however, I have always intuitively felt or seen a slight discontent, an inclination, perhaps, to give in too soon; perhaps I have noticed this more in the male than in the female.

As far as my experience has shown, pulmonary tuberculosis apparently favours the brown-hair-brown-eye combination more than the fair-hair-blue-eye one. Why this is so, and why bad cases of the brown-hair-brown-eye combination should usually outlive bad cases of other colour combinations, has still to be determined, if true.

The answer that occurs to me is, that those born with the brown-colour combination have a predisposition to the disease. Those with different colour combinations either have no predisposition, or, if any, a very slight one. It is also probable that Nature causes the common brown combination to inherit a greater resistance in its efforts to overcome the disease, and this is the reason why this combination responds more thoroughly to sanatorium treatment. Certain it is, however, that old chronics who have outlived many other lighter cases of different colour combinations are of the brown combination.

Although I believe it to be the case, it is a long way to go to assert that the brown-hair-brown-eye combination are predisposed to or inherit pulmonary tuberculosis at birth, and that passive immunization is always going on in those affected, whereas the fair-hair-blue-eye

combination are not so predisposed, if at all, do not inherit it, have no immunization at work, and therefore the results are not so good.

If the colour combination and the consequent history of all cases were studied carefully and watched, it would go far towards solving my colour theory. I would advance the rule that all children born with the brown-hair-brown-eye combination should be carefully watched from birth, as being not only predisposed, but in many cases inheriting, pulmonary tuberculosis, and also spreading it in later years —the poor under the care of the State, the remainder by their own doctors. The fair-hair-blue-eye type probably receive the disease through direct infection alone, and cases in this class might in time disappear if the above suggestion of looking after the brown-hair-brown-eye combination was followed.

To one who does not believe that this disease will ever be cured by any specific remedies—some of which benefit a few, but unaffect the majority—it seems the stamping out of pulmonary tuberculosis will only be effected by carefully looking after the predisposed in their childhood — namely, the brown-hair-brown-eye combination. In conclusion, I would like to give the result of fifty cases, taken more or less at random and treated at my sanatorium :—*Brown-Hair-Brown-Eye Combination :* Thirty cases : 18 cures, 9 deaths, 3 relative cures. Of the deaths, 1 died from drug-poisoning after leaving the sanatorium, 1 through negligence, 3 after several years' illness, 2 after from six to ten years' illness, 2 from pneumothorax, and 1 from tubercular meningitis. *Fair-Hair-Blue-Eye Combination :* Twenty cases : 4 cures, 1 relative cure, 12 deaths, 3 under treatment (1 making progress and 2 making slow progress). The deaths in this class were in no instance cases of long standing, and none were really passive towards treatment.

This subject of colour types in tuberculosis, I venture to think, is deserving of careful study by those who are responsible for the care of tuberculous and tuberculously-disposed subjects.

THE PREVALENCE AND PREVENTION OF TUBERCULOSIS IN EARLY LIFE.

By J. T. AINSLIE WALKER,
F.C.S.

In the course of some recent notes on "Consumption in Children," the writer says: "If there is one thing that has been made clear of late years in regard to the spread of consumption, it is that the children are the commonest victims of that disease, and it is from amongst the children that we must stamp it out if we are ever to finally overcome the 'great white plague' in this country. . . . It is in the actual prevention of infection with the germs of consumption (the bacilli of tuberculosis), as much as in the cure of those already attacked, that our hope of ultimately exterminating the disease must necessarily rest."[1]

While the home is probably the principal source of tuberculous infection of children, the possibility of infection through school intercourse is one that cannot be ignored. Authoritative estimates of the extent to which pulmonary phthisis exists among children of school age differ widely. Dr. T. N. Kelynack says the returns vary from ½ to 6 per cent., his own view being that pulmonary tuberculosis among children is of frequent occurrence, although often overlooked.[2]

Dr. R. W. Philip tells us that of 1,000 school-children examined at the Royal Victoria Hospital, Edinburgh, more than 30 per cent. showed evidence of tuberculous lesion.[3] Even on the lowest estimate, ½ per cent., it will be realized that among the 6,000,000 children in attendance at the elementary schools of England and Wales there must exist alarming potentialities for tuberculous infection. There are, in addition, two other possible sources of school infection—viz., consumptive teachers, and the common practice of using schoolrooms for public meetings, etc. To the former danger Dr. T. N. Kelynack has referred in the following words: "The presence of a consumptive teacher, placed, it may be, in an insanitary school, and in charge day after day for long periods at a time of debilitated and tuberculously-disposed children, is so grave a risk that no education authority should be permitted to accept it."[4] As regards the danger arising from the use of school premises for public meetings, Dr. C. E. Humphreys,

[1] *Daily Telegraph*, August 9, 1910.
[2] *Journal of the Royal Institute of Public Health*, November, 1908. See also "Tuberculosis in Infancy and Childhood," edited by T. N. Kelynack, M.D. London: Baillière, Tindall, and Cox. 1908.
[3] *Medical Officer*, December 13, 1909.
[4] Paper presented to the Second International Congress on School Hygiene, London, 1907.

Medical Officer of Health of Montgomeryshire, says: "The state of the floor on the morning following a public meeting often presents a disgusting appearance, what with accumulation of dust and dirt, and pools of expectoration here and there, possibly from the lungs of a consumptive. The danger of this to the children might be minimized by adding a disinfectant to the watering-can before sweeping the floor."[1] The value of this suggestion should be obvious, for, conceding the probability of the presence of tubercle bacilli on the schoolroom floor, it is surely a measure of the commonest prudence to take steps to destroy those bacilli, and this, in the absence of abundant direct sunlight and fresh air, can only be effected by the judicious use of disinfectants. The need for the disinfection of rooms which have been occupied by consumptives is universally admitted, and, where notification is in force, this is rarely omitted. It is, therefore, not easy to understand why disinfection should be less valuable in the case of crowded and insufficiently cleansed buildings used for young children, such as the elementary schools of our country. Professor Kenwood has said: "The plea for routine disinfection of school premises does not end with the case in reference to the common infectious diseases: there are cogent grounds for adopting the practice as a serviceable precaution against the spread of consumption."[2] This would appear to be the common-sense view of the question, and certainly it is worthy of the serious consideration of all education authorities.

[1] *Medical Officer*, July 23, 1910. [2] *School World*, September, 1908.

INSTITUTIONS FOR THE TUBERCULOUS.

THE QUEEN ALEXANDRA SANATORIUM, DAVOS PLATZ, SWITZERLAND.

THE Davos Valley, at an elevation of nearly a mile above the sea-level, runs almost parallel to the Engadine at a distance of some twenty-five miles to the west of it. The comparatively open nature of the valley extends six miles in a southerly direction, and varies from half to one mile in width. Surrounded by mountains of nearly 5,000 feet, it is much sheltered from the strong winds, which can be seen to blow the snow off the rocks at their summits almost any day in the winter. Here, some forty-five years ago, sufferers from pulmonary complaints

THE QUEEN ALEXANDRA SANATORIUM, DAVOS.

began to come, at first, however, only in the summer months, as it was then considered too risky to attempt to winter in this severe climate. The result of this experiment proved so satisfactory that each year since then an increasing number of pilgrims has wended its way here, until now nearly every available site has been occupied by some sort of building to accommodate them.

Through the generous subscriptions of a large number of our fellow-countrymen, and under the patronage of Queen Alexandra, it has been possible to erect a first-class sanatorium for English patients. This has been given the name of the "Queen Alexandra Sanatorium." It has been built to enable sufferers from tuberculosis to obtain the unique advantages of a residence in this climate who, through lack

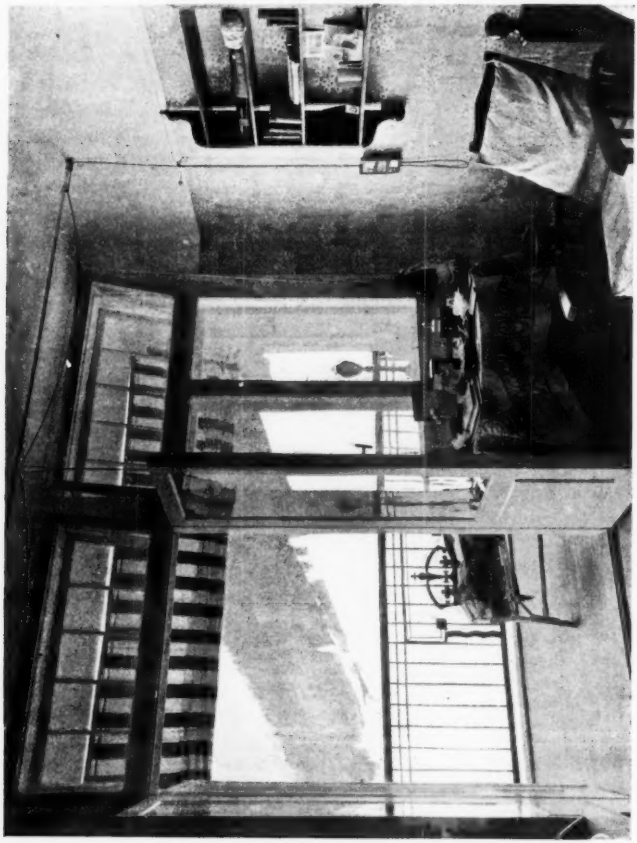
of means, would otherwise have been unable to do so. Situated on the side of the mountain, some 300 feet above Davos, it escapes the smoke, which, even in a town of this comparatively small size, threatens to become somewhat of a nuisance.

Opened in November, 1909, the sanatorium now contains fifty-five bedrooms, all of which, with the exception of four, have a private balcony and face almost due south. This number of beds will shortly

GENERAL VIEW OF THE BACK OF THE QUEEN ALEXANDRA SANATORIUM.

have to be increased, in accordance with the original idea, if we are to cope with the demand for rooms, which has already outstripped our expectations. The inclusive charge is at present fixed at thirty-eight shillings per week for all rooms, but, owing to the increased cost of all foods, it will probably have to be slightly raised if the sanatorium is to pay its way.

The control of the institution is in the hands of a Council in England, presided over by Lord Balfour of Burleigh. There is also a local Board of Management, of which the British Consul, Dr. W. R. Huggard, is chairman. Dr. Huggard, Dr. Buol, and Dr. Bill are the three visiting physicians, who make periodic visits to the sanatorium



A PATIENT'S BEDROOM.

from Davos. There are two resident medical officers and three English nurses.

The only qualifications needed for admission are: (1) That patients must be British or American subjects; (2) that they cannot afford hotel or pension prices in Davos; (3) that they are passed as suitable by one of our hon. examining physicians in Great Britain.

J. W. NOBLE, M.B.,
Medical Superintendent.

HEALTH STATIONS.

DAVOS.

DAVOS is situated in the Canton of Graubünden, in the East of Switzerland, at an altitude of 5,100 feet above sea-level. It is the oldest as well as the most extensive of the Alpine health resorts. From the Basler

GENERAL VIEW OF DAVOS.

Heilstätte at the foot of the Fluela Pass it follows the windings of the almost level post-road down valley to end in the neighbourhood of the Queen Alexandra Sanatorium, some two and a half miles away.

The general trend of the valley is to the south-south-west, and Davos is almost entirely built on the sunny side, facing east-south-east. The situation is spacious, yet sheltered. Hence, in the first place an abundance of sunshine, in the second a relative absence of wind. Statistics of the years 1885-1900 show the occurrence of 53·5 per cent. of the maximum possible sunshine. Wind is often absent and very rarely of any considerable velocity. Different parts of Davos vary notably in the amount of protection afforded, and a sharp breeze in the centre of the valley is often practically unfelt elsewhere. The valley wind has the peculiarity of blowing down dale, southward, making it possible for patients lying out in the open air to be protected from the wind while exposed to the sun. The total annual precipitation, measured as rain, averages about 35 inches, a very small amount for so high an altitude. The snowfall, measured as freshly fallen, averages about 17 feet. Records of the years 1891-1909 give an average of seven foggy days per annum. The enhanced diathermancy of the dry, thin air brings warm days even in January, and cool nights in August. The intense dry cold of the winter at this altitude is matter of common knowledge.

The general use, universal in the larger buildings, of central heating from a coke furnace minimizes smoke. Gas, manufactured at Laret, four miles north of Davos, is largely used for cooking; less for heating and lighting. There is a system of main-drainage, which is kept perpetually flushed by an abundant supply of running water. Davos is reached from London in twenty-four hours, and the ascent from the lowlands by the Rhætian Railway can be made by two alternative routes. Further details regarding Davos may be obtained by reference to Dr. Huggard's "Handbook of Climatic Treatment" (London: Macmillan and Co., 1906. Price 12s. 6d.); and 'Davos as Health Resort" (Davos: The Davos Printing Co., 1907. Price 6 francs).

A. F. Bill, M.D.

NOTICES OF BOOKS.

THE STATISTICS OF PULMONARY TUBERCULOSIS.

THE methods of Professor Karl Pearson and his disciples have given rise to much discussion, and his conclusions drawn from a study of the statistics of tuberculosis have been much criticized both by clinicians and pathologists. In issuing the third study of the statistics of pulmonary tuberculosis in the Drapers' Company Memoirs, Professor Pearson clearly indicates his aims and purposes.[1] His own words shall be quoted: "(1) To indicate the extreme importance of collecting data as to the treatment of the tuberculous in a form capable of actuarial reduction. (2) To moderate in some slight degree the excessive dogmatism prevalent in one or two quarters with regard to the treatment of the tuberculous. (3) To show how in this, as in many other problems of a medico-statistical nature, we lack the comparative data on which alone sound judgments can be based, and are liable to replace scientific certitude by impressions and opinions." Professor Karl Pearson proceeds: "I am glad to say that, owing to the due appreciation of these difficulties by a number of medical men, further data, not only as to modern sanatorium treatment, but as to the mortality of the tuberculous in pre-sanatorium days, will shortly be forthcoming, and we may hope for further knowledge to confirm or modify the conclusions of this memoir. As it stands, the authors appears to me to have rendered more material available for comparison than I have hitherto met with in discussions upon the value of sanatorium treatment. And the lesson of the memoir must be: Advance, but cautiously and without dogma; sanatorium treatment is of the nature of a reconnaissance, it is not demonstrably a victory." In studying the effects of sanatorium treatment on the length of life of the patients, the authors of this monograph indicate that they have discussed the question "(1) by comparing the mortality among tuberculous patients after treatment with that of the general population, and (2) by comparing the mortality among tuberculous patients who undergo sanatorium treatment with the mortality of patients before that treatment." It is impossible within the limits of a necessarily restricted notice to deal critically with this remarkable monograph. All students of tuberculosis and those engaged in sanatorium work should give it careful study. We venture, however, to reproduce here the summary and conclusions of this interesting, although by no means conclusive, research. The results are given as follows: "(1) The mortality of tuberculous patients who are undergoing or have undergone treatment is much heavier than that of the general

[1] Drapers' Company Research Memoirs: Studies in National Deterioration. VI. Third Study of the Statistics of Pulmonary Tuberculosis: The Mortality of the Tuberculous, and Sanatorium Treatment. By W. Palin Elderton, F.I.A., and S. J. Perry, A.I.A. With a Prefatory Note by Professor Karl Pearson. Pp. 36. London; Dulau and Co., Ltd., 37, Soho Square, W. 1910. Price 3s.

population, and even when the disease is taken in an incipient stage the mortality is about four times as heavy. (2) The mortality of the apparently cured cases is about twice as heavy as that of the general population. (3) The mortality among sanatorium patients does not show any improvement on that of Williams' and Pollock's cases. The comparison is, however, rendered difficult by the way the older figures were given." The authors add: "We confess that these conclusions are not those we hoped to reach. It would have been far more pleasant to record that the whole-hearted energy of those members of the medical profession who have devoted themselves to sanatorium treatment had succeeded in reducing the mortality among the tuberculous; but we cannot go beyond our statistics, nor read into them opinions they do not justify." They continue: "We hope, however, that our medical friends will enable us to carry our investigations farther, and will let us have information about the after-histories of their patients. Cards like those described in this paper will be supplied, and if these are properly filled up for *all* the cases treated, the only other information required will be a general statement as to the methods adopted in deciding whether the patients had tuberculosis. We make this appeal for information because we wish to help, so far as possible, those engaged in the study of tuberculosis. We feel sure that they would be the first to say that, if there is the slightest doubt about the efficacy of the treatment, the more thorough the investigation the better; and they would probably add that, as we are now hearing much about a "crusade" against consumption, it is well to be quite certain of our ground before incurring the expense of work and money that such a crusade entails." It may be hoped that in this and other lands similar but more extended researches will be undertaken, but in closer co-operation with physicians engaged in the active practice of sanatorium work.

THE PRINCIPLES OF METEOROLOGY.

Medical climatology has become a systematized study to which many physicians have devoted much attention. Comparatively few, however, have distinguished themselves as meteorologists. Sir John Moore of Dublin is a conspicuous exception. His well-known work first appeared sixteen years ago, but for some time has been out of print. We are therefore glad to be able to welcome a second, revised and enlarged edition.[1] The subject of meteorology is one which should appeal to all interested in the out-door management of tuberculous subjects. It would be well if every sanatorium was equipped with an efficient meteorological outfit, and undertook the regular duties of an accredited station. To all desirous of becoming acquainted with the principles of the subject, and willing to acquire knowledge regarding recognized methods of procedure, we strongly recommend Sir John Moore's able work. During recent years meteorological science, both at home and abroad, has advanced; but such progress as has been made is adequately indicated in this

[1] "Meteorology: Practical and Applied." By Sir John Moore, M.A., M.D., D.P.H., D.Sc., F.R.C.P.I., Fellow of the Royal Meteorological Society, ex-Scholar of Trinity College, Dublin. Second revised and enlarged edition. Pp. xxvii + 492. Illustrated. London: Rebman Limited, 129, Shaftesbury Avenue, W.C. 1910. Price 10s. 6d. net.

volume. In fact, every page has undergone painstaking revision, and the work now stands as the most up-to-date and complete exposition of the subject available in the English language. The nature and scope of meteorology is carefully defined, and the physical properties and composition of the atmosphere described in detail. An interesting history is given of British meteorological observations, with particulars of the organization and work of the United States Weather Bureau and the meteorological service of the Dominion of Canada. A series of studies then follows on air-temperature and its management, radiation, atmospheric pressure, the atmosphere of aqueous vapour, atmospheric electricity, and the upper atmosphere. Medical practitioners will be particularly interested in the sections dealing with climatic conditions in the British Isles, and the influence of season and of weather on acute infective diseases. A chapter is devoted to the seasonal prevalence of pneumonic or lung fever. We could have wished that it had been possible to have devoted a chapter to tuberculosis. Good work has been done with regard to the relationship of winds and consumption, but we are still in the dark as to the precise way in which meteorological conditions influence the course of tuberculous disease both in man and in animals. We hope that medical superintendents of sanatoria will study the principles of meteorological science, explicitly explained in Sir John Moore's interesting work, and that then they will turn their attention to the thorough investigation of the relationship of tuberculosis to various climatic conditions and meteorological states. Here there is a wide and almost unexplored region for patient, painstaking research.

THE EXTIRPATION OF CONSUMPTION.

Dr. Benjamin Moore has issued a book[1] which is intended "to demonstrate on clear, broad lines the necessity for entirely remodelling the present system of medical service in the interests of the whole community." The author seeks to show "how we tinker with disease instead of stopping it," and details what he considers "the follies of our present public health service." There are chapters on the relationship of the doctor to his patient, both in private and in State practice, our hospital systems, and the evolution of what is called "the national medical service." A lengthy chapter is devoted to "the warfare with the great white plague." A few quotations will best indicate the author's views on this perplexing problem: "The annual expenditure for consumption eradication would be three hundred thousand for interest on cost of erection of sanatoria to accommodate the patients, and seven millions, initially, dropping within five to six years to one million annually, for feeding and attending to the patients. The total amount is less than eight millions a year, even at the outset; and for this sum a disease which now costs the nation at least thirty millions a year can be eradicated with scientific certainty within a period of ten years." Again: "The one vital criterion which must be maintained is that *any* patient producing bacilli-laden sputum must live a life apart from the nation in all concerns which may bear infection." And the solution of the

[1] "The Dawn of the Health Age." By Benjamin Moore, M.A., D.Sc., M.R C.S., L.R.C. P. Pp. ix + 204. London: J. and A. Churchill. 1911. Price 3s. 6d. net.

whole matter is summarized thus (printed in capitals !): "As we are free now from hydrophobia, so can we be free from tuberculosis, when we find a statesman of the courage and fortitude of Mr. Walter Long to lead us to victory." Dr. Moore's book makes interesting reading, but it will scarcely further progress.

MANUALS FOR MEDICAL PRACTITIONERS.

Dr. J. F. Halls Dally has done good service in providing an English version of Dr. Saalfeld's well-known work on Cosmetics.[1] As the translator says in his Preface, "it is high time that this specialized branch of dermatology, with its attendant dangers in unskilled hands, should be definitely raised to its proper sphere." We quite agree with Dr. P. S. Abraham that "it will be useful to medical men in general," and we are glad to be able to notice it here, for we are certain that it will be of assistance to medical superintendents of sanatoria in particular. It is a thoroughly scientific and practical manual, dealing with the treatment of disorders which go to make a "bad complexion," anomalies of cornification, vascular cutaneous lesions, hypertrichosis, baldness, anomalies of pigmentation, sweat secretion, and other derangements of the skin. The detailed directions for management and the prescriptions given will be invaluable to the doctor desirous of doing the best for his cases both in institutional and private practice. All concerned in the preparation of the English edition of this thoroughly helpful therapeutic handbook are to be congratulated.

Dr. Arthur E. Giles has broken new ground by the publication of his last work.[2] It is an exceptionally able monograph, which cannot but be studied with interest and profit by all medical practitioners, for it deals with the ultimate results of operative procedures on the pelvic organs of a thousand consecutive patients. The chief features and analyses of these cases are systematically expressed, and their study will be of value in assisting medical advisers, not only in the formation of a reliable prognosis, but in the direction of their patients in regard to operations. The work is not one which can be easily summarized within the limits of a short notice, but it is a record of long-continued and painstaking research, which will have a permanent influence on gynæcological practice. The book is admirably printed, is light to hold, and comfortable to read.

Dr. Eugene S. Yonge's work on "vasomotor rhinitis" is one which physicians dealing with consumptives in sanatoria and elsewhere will do well to study.[3] It furnishes in convenient form and compressed compass a summary of the most reliable information available regard-

[1] "Lectures on Cosmetic Treatment: a Manual for Practitioners." By Dr. Edmund Saalfeld, of Berlin. Translated by J. F. Halls Dally, M.A., M.D., B.C., M.R.C.P. With an Introduction and Notes by P. S. Abraham, M.A., M.D., B.Sc., F.R.C.S.I. Pp. xv+186. London: Rebman Limited. 1910. Price 5s. net.

[2] "A Study of the After-Results of Abdominal Operations on the Pelvic Organs, based on a Series of One Thousand Consecutive Cases." By Arthur E. Giles, M.D., B.Sc., F.R.C.S., Surgeon to the Chelsea Hospital for Women; Gynæcologist to the Prince of Wales's General Hospital, Tottenham. Pp. viii+251. London: Baillière, Tindall and Cox. 1910. Price 10s. 6d. net.

[3] "Hay Fever and Paroxysmal Sneezing (Vasomotor Rhinitis)." By Eugene S. Yonge, M.D., Physician to the Manchester Hospital for Consumption and Diseases of the Throat. Pp. 150. Edinburgh and London: William Green and Sons. 1910.

ing hay asthma, paroxysmal sneezing, and iodopathic rhinorrhœa. Disorders of the nasal cavities are so frequent among tuberculous subjects that no conscientious medical practitioner dealing with such cases can afford to remain in ignorance of the facts, theories, and practical measures so effectively expressed in this well-arranged, admirably printed, and beautifully illustrated volume. While giving ample justice to the work of others, the author does not hide his own personality, and freely indicates his own views and experience, particularly in regard to treatment.

"Remedia Hoechst," issued by Meister Lucius and Bruning, of Hoechst-am-main, in Germany, is a comprehensive work, containing information relating to the manufacture, testing and standardizing of the various products introduced to materia medica by this firm.[1] The description of each preparation is carried out on a definite plan, not unlike that followed by the British Pharmacopœia. A short history is given of the introduction of each preparation, followed by a complete description of its clinical uses. There is a very complete bibliography, with abstracts from representative medical journals of articles contributed by medical workers of various nationality. The sections dealing with tuberculins cover some forty pages, and give much useful information regarding the preparation and employment of these products. Professor Koch first entrusted the manufacture of tuberculins to the above-mentioned firm, and the number of varieties of tuberculin now to be obtained from them are a sure indication of the increased interest which is now being devoted to these preparations. The volume is published in German, and is being presented, free of charge, to any member of the medical profession who cares to apply to Meister Lucius and Bruning, Ltd., 51, St. Mary Axe, London, E.C.

Consumptives and tuberculously predisposed subjects should be encouraged to take up gardening as a pursuit or pastime. Among the many works recently issued dealing with garden life we desire to draw attention to the dainty and artistically printed booklets issued by Mr. T. Werner Laurie, under the general title of "Garden Booklets."[2] These attractive little volumes are just the thing to enclose in an envelope to a friend or a patient whom we wish to turn aside from self-musing and direct to nature study. These tiny pocket manuals should stimulate many to seek health and happiness in the outdoor life of the garden.

WORTHY OF REFERENCE.

The literature of tuberculosis has now reached almost unmanageable dimensions, and daily new works—good, bad, and indifferent—are appearing. It is much to be desired that a public library and bureau devoted to tuberculosis should be established and endowed

[1] "Remedia Hoechst": Pharmazeutische Produkte, Serotherapeutische und Bakterien Präparate der Farbwerke vorm Meister Lucius et Brüning, Hoechst-am-Main, Germany. Pp. 794. London Agents: Meister Lucius and Bruning Ltd. 51, St. Mary Axe, E.C. 1910.

[2] The Garden Booklets: "The Fern Garden"; "The Bulb Garden"; "The Rock Garden"; "The Formal Garden"; "The Water Garden"; "The Rose Garden." By K. L. Davidson. With frontispieces by C. E. Dawson. London: T. Werner Laurie, Clifford's Inn.

in this country, where all works relating to the subject might be available for reference by every serious student of the problem.

The last volume issued by the American Climatological Association is of special interest, in that it contains a number of important and highly suggestive papers on various aspects of tuberculosis.[1] Dr. Edward R. Baldwin discusses the organization of health resorts, with special reference to tuberculosis; Dr. Hugh M. Kinghorn writes on the employment of cold in the treatment of pulmonary tuberculosis; Dr. Charles L. Minor describes the effects of heat and cold on the disease; Dr. Arthur K. Stone offers a plea for the treatment of peritoneal tuberculosis by hygienic, rather than surgical, measures; Dr. J. A. Miller describes the management of tuberculin treatment in office and dispensary practice; and Dr. H. Maxon King expresses opinions on the rôle of vaccine therapy in tuberculosis in Institutional practice. These articles are of particular value as expressing the views and practices of American experts.

The last volume issued by Dr. Samuel G. Dixon, Commissioner of Health for the Commonwealth of Pennsylvania,[2] is a bulky volume full of interesting material relating to the well-being of the people of the State. It contains a striking diagram, showing the comparative mortality from tuberculosis of the lungs. There are also valuable tables giving the mortality of pulmonary tuberculosis in reference to occupation. A list is given of sanatoria and dispensaries for the treatment of tuberculosis.

An interesting brochure on the "Cure of Tuberculosis" has been issued by Mr. J. V. Moore, and merits reference because it is written by a tuberculous patient who has fought his way back to health, and now seeks, in clear-cut words, to incite other sufferers to follow his rational and effective methods.[3] The author looks forward to and works for the coming of the day when "every person shall take proper precautions to prevent infection, and shall realize that the only cure for consumption is fresh air, good food, and rest." This sensible booklet should have a large circulation.

Dr. Knobel, of the Midland Open-Air Sanatorium, Bourne Castle, Belbroughton, Worcestershire, has issued a suggestive booklet on the early recognition of pulmonary tuberculosis.[4]

The last report emanating from the Laboratories of St. George's Hospital, London, contains a very valuable study "On the Occurrence of the *Bacillus Tuberculosis* in the Circulating Blood of Tuberculous Patients, and on the Value in Diagnosis of Microscopical Methods for the Demonstration of the Bacillus in that Fluid," by Dr. E. L. Hunt.[5]

Merck's new volume of his well-known series of Annual Reports

[1] Transactions of the American Climatological Association for the Year 1910. Vol. xxvi. Pp. 235. Philadelphia: Published for the Association. Hon. Sec., Guy Hinsdale, M.D., Hot Springs, Va., U.S.A. 1910.

[2] The Third Annual Report of the Commissioner of Health of the Commonwealth of Pennsylvania. Pp. 1339. Harrisburg: C. E. Aughinbaugh. 1909.

[3] "The Truth about Tuberculosis and its only Cure: A Plain Book for Plain People, by One of Them." Written and published by J. V. Moore. Royal Oak, Maryland, U.S.A. Price 25 cents.

[4] "The Early Diagnosis of Phthisis." By W. Bernard Knobel, M.A., M.D. Pp. 16. Birmingham: Allday Limited, 128-130, Edmund Street. 1910.

[5] Report from the Clinical and Research Laboratories, St. George's Hospital, London. Pp. 208. London: John Bale, Sons and Danielsson, Ltd. 1911. Price 5s. net.

contains references to the treatment of tuberculosis by the sera of Maragliano and Marmorek, as well as many other new preparations.[1]

Wellcome's Photographic Diary is now so well known that but few words are required to remind all those who use a camera that this is a companion and practical remembrancer that cannot be dispensed with.[2] Information about photography, in order to be of real service to the practical worker, must be quickly available and expressed in the simplest terms. This diary is essentially a book for the pocket, and is the most handy epitome of photographic art and practice. The articles in the literary portion are all of a highly interesting and useful character. In the latter portion of the book the problem of exposure is taken up in a very thorough and ingenious manner. A feature of this year's edition is the special article on Colour Photography, in which a simplified method of producing the necessary solutions is given. The Diary is published in three editions —namely, The Northern Hemisphere and Tropics, the Southern Hemisphere and Tropics, and The United States of America.

A series of diaries admirably adapted for the requirements of medical practitioners, and, indeed, of all sorts and conditions of men and women who require a conveniently arranged and handy pocket notebook, has been issued by the well-known firm ot Messrs. Thomas de la Rue and Co.[3] The "Onoto" Diary is made in two sizes, the smaller being specially intended for the waistcoat pocket or lady's handbag. Both sizes are provided with a monthly index, also an alphabetical index to record addresses, telephone numbers, and other items. The printed information has been most carefully selected, so as to prove useful for everyday reference. A complete week appears at each opening. With every copy is issued an insurance coupon for £1,000. The "Onoto" Diary is bound in several kinds of leather and fitted to a variety of cases. The prices range from 6d. to 13s. 6d. All tastes and pockets are met.

The well-known manufacturers of "Scott's Emulsion" again issue their neat and compact Doctors' and Nurses' Diaries.[4] Long experience has testified to the convenience and service of these well-arranged, handy, and admirably shaped notebooks. They contain much useful data and a coupon insurance ticket for £500.

Another diary suitable for use in a doctor's consulting-room or surgery is issued by the well-known Maltine Company, whose various products have gained a high reputation for their pharmaceutical form and therapeutical merits.[5]

[1] E. Merck's Annual Report of Recent Advances in Pharmaceutical Chemistry and Therapeutics. Vol. xxiii. Pp. 381. Darmstadt: London office: 16, Jewry Street, E.C. 1910.

[2] "The Wellcome Photographic Exposure Record and Diary." Pp. 280. With exposure calculator. London: Burroughs, Wellcome and Co. 1911. Price 1s. net.

[3] Full particulars regarding the "Onoto" Series of Diaries may be obtained on application to Messrs. Thomas de la Rue and Co., 110, Bunhill Row, London, E.C.

[4] "Scott's Emulsion Doctors' (and Nurses') Diary and Emergency Notebook for 1911." To be obtained from Messrs. Scott and Bowne, Ltd., 10-11, Stonecutter Street, London, E.C.

[5] The Diary for 1911. Published by the Maltine Manufacturing Company, Ltd., and Messrs. Carmick and Company, Ltd., 24 and 25, Hart Street, Bloomsbury, W.C.

PREPARATIONS AND APPLIANCES.

THE "REX" STERILIZER.

It may be safely said that the researches of Pasteur and the application by Lister of his masterly conclusions to the practical conduct of surgery and the protection of life generally have revolutionized, not only our conceptions of disease, but also our methods of treating many morbid states, and our measures for preserving life in health and happiness. We now know that the great truths underlying so-called antisepsis is applicable in some measure to most of the arts and industries which are intimately concerned with human welfare. And so it has come to be recognized that a sterilizer may be considered an essential equipment for every home. Among the many forms of sterilizers now available, one of the cheapest and best for domestic purposes is the "Rex" Sterilizer.[1] For the sterilization of milk the apparatus is admirable. Special bottles are provided, and in these milk after sterilization at 100° C., for from twenty to sixty minutes, can be kept without apparently changing its character to any appreciable degree for long periods. The sterilizer itself consists of a strong tin vessel fitted with a thermometer, and allowing considerable capacity for the placing of bottles in which milk or other materials which are to be sterilized may be placed. Whatever views may be held as to the value of sterilization of milk as a preventative of tuberculous infection, there seems to be no doubt that by suitably heating it, tubercle bacilli, if present, are rendered innocuous. We believe the "Rex" Sterilizer will be appreciated in many private homes and public sanatoria. But the "Rex" Sterilizer is also of value for preserving fruit, vegetables, and the like. The bottles provided are made of the toughest glass, specially annealed, and have mouths well ground to insure hermetic

[1] Full particulars may be obtained on application to the Sole Agent for the United Kingdom, Mr. George Otto Henninger, 11, Great James's Street, Bedford Row, London, W.C.

sealing. The convenient size and shape of the jars are excellent for storing. The general form of this effective sterilizer is indicated in the accompanying illustration.

A NOVEL STETHOSCOPE.

We have received a new form of stethoscope, which presents certain interesting features.[1] . It consists of a mica plate with wooden diaphragms of various sizes. Beneath the mica disc is a chamber, from whence the sound is conducted, by means of rubber tubes, to the physician's ears. The appliance is contained in a light, portable celluloid case. The patentees hold that the instrument possesses many advantages over the ordinary forms of stethoscope, and although we believe that, generally speaking, the simpler the stethoscope the more effective is it for clinical service, this novel appliance merits careful testing.

THROAT SPRAYS.

In previous issues we have illustrated and described some of the ingenious atomisers and sprays introduced by Messrs. C. J. Hewlett

THE "GRADULIQUE" SPRAY FOR AQUEOUS AND SPIRITUOUS SOLUTIONS.

THE "GRADULIQUE" SPRAY FOR OILY LIQUIDS.

and Son.[2] This enterprising firm has now provided two more effective contrivances which will be of considerable service in the treatment of disorders of the throat. The "GRADULIQUE" ATOMISER OR SPRAY is made of toughened glass, which allows of the apparatus being boiled

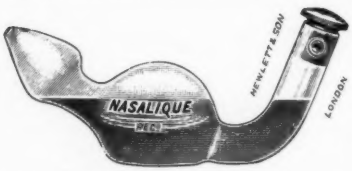
[1] The new stethoscope may be obtained from Messrs. Coleman and Co., Ltd., of Norwich.

[2] An illustrated booklet of "Hewlett's Registered Atomisers and Sprays" may be obtained on application to Messrs. C. J. Hewlett and Son, Ltd., 35-42, Charlotte Street, Great Eastern Street, London, E.C.

without fear of damage. It is graduated from ten to forty minims, and marked clearly on the outer surface of the tube. Two forms are available, one for aqueous and spirituous solutions, the other for use with oily liquids. As is well known, chronic inflammatory conditions and other derangements of the nose and throat are common in tuberculous subjects, and medical practitioners, and especially those responsible for the management of cases in hospitals and sanatoria, will find these atomisers of much practical assistance.

NASAL DOUCHES.

In both hospital and private practice it would be well if all consumptives were submitted to an examination of the nose and throat as well as a thorough investigation of the lungs. It is surprising how often a case of pulmonary tuberculosis is advised open-air treatment and recommended breathing exercises, or even sent for prolonged hygienic management into a sanatorium without any notice being taken of long-existing morbid conditions of the nose, which must inevitably hinder and hamper general restoration. In the treatment of chronic inflammatory conditions of the mucous membrane of the nose the "NASALIQUE" DOUCHE will be of value.[1] Its chief features are indicated in the accompanying figure. It is strong, can be easily cleansed by boiling, and is simple and effective in use. By an ingenious device the entry of air can be regulated, so controlling the flow of the liquid contents.



THE "NASALIQUE" NASAL DOUCHE.

The NAZENE NASAL BATH is another contrivance for cleansing the nasal channels.[2] "Nazene" powder is dissolved in tepid water, which is then poured into the porcelain nasal bath and gently sniffed up into the nostrils, and then allowed to flow along the lower nasal passages. As a cleansing antiseptic and sedative nasal wash for the healthy, and a therapeutic douche for many ailments in which the mucous membrane of the nose is involved, this preparation and appliance should be of service.

A NEW POCKET HYPODERMIC SYRINGE.

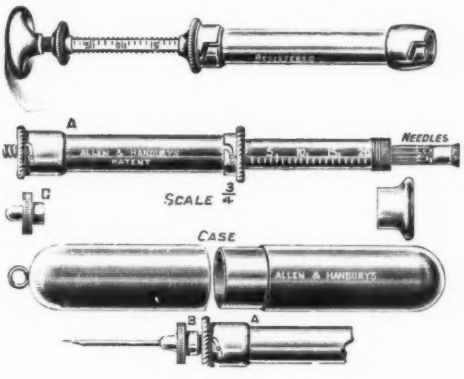
A reliable, portable, and easily cleaned hypodermic syringe is an indispensable companion for every medical practitioner. A remarkably neat and effective instrument has just been introduced by Messrs. Allen and Hanbury under the name of the "WATCH POCKET" HYPODERMIC SYRINGE.[3] Its form is shown in the accompanying

[1] The "Nasalique" Douche is supplied by Messrs. C. J. Hewlett and Son, Ltd., 35-42, Charlotte Street, London, E.C. Price 1s. 6d.

[2] "Nazene" and the "Nazene Nasal Bath" is supplied by the Nazene Company, 30 and 31, Great Marlborough Street, London, E.C. Price 2s. 6d.

[3] The "Watch Pocket" Hypodermic Syringe is supplied by Messrs. Allen and Hanbury, of 48, Wigmore Street, Cavendish Square, London, W. Price 10s. 6d.

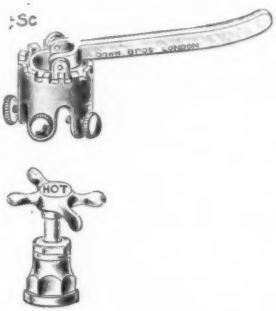
figures. It is small and portable. In size it is only a trifle larger than the little finger, and a ring is fitted to the top of the case, so allowing for its attachment to the swivel of a watch-chain if desired. It promises to be exceptionally durable, for the syringe is made of metal throughout. There is therefore no trouble from the breakage of glass. The metal plunger avoids all obstruction so common with those of leather, asbestos, or rubber. The syringe is supplied complete with six needles, which are carried in an aseptic tube within the plunger. The syringe can be completely sterilized. If "Hypoderms" are used, the syringe can be placed in an upright position, allowing of the easy addition of a little boiled water, which will dissolve the "hypoderms" while the needle is being adjusted and the patient prepared.



THE "WATCH POCKET" HYPODERMIC SYRINGE.

A SANITARY TAP LEVER.

Dr. James Shaw, of Belfast, has invented a very ingenious contrivance which should be of much value in private houses, nursing homes, hospitals, and sanatoria, where the water-supply is delivered through pipes provided with the ordinary screw taps.[1] The appliance consists of a lever attached to a revolving disc, surrounded by a ring, having four large notches on its lower edge, which are made to fix over the limbs of the customary screw-tap. On the upper edge are a number of small notches in which the lever may be fitted. When rotated the ring is carried round and the tap-handle turned. The fitting is adjusted to the tap, which is quickly and accurately done by screwing home the four screws placed between the large notches that take the tap-"wings." The tap can then be opened or closed at pleasure by a push from the operator's elbow. A spring under the lever releases it from its notch when the pressure is withdrawn in readiness to engage in another notch, and thus either unscrews the tap further to increase



[1] The appliance is supplied by Messrs. Down Bros., Ltd., St. Thomas's Street, London, S.E.

the flow, or, in the opposite sense, closes the tap, as preferred. The advantages of this simple but most effective contrivance are self-evident, and it should prove very popular among surgeons and others desirous of having a sanitary tap-lever.

HYGIENIC HANDKERCHIEFS.

Under the title of PINO HANDKERCHIEFS, a particularly neat and pleasing form of soft handkerchief has been introduced for the use of consumptives and other patients suffering from infectious ailments which make it desirable that the customary pocket sanitary requirement should be destroyed after having served its purpose. These handkerchiefs have somewhat the appearance of Japanese paper, but are softer, more pliable, and are said to be of English make. Each "Pinomed" is said to be equal to seven or eight ordinary Japanese paper articles. These handkerchiefs have an interlining of pure absorbent wool impregnated with antiseptic pine oil. Each is destroyed when finished with.[1]

AN ANTISEPTIC PERFUME.

Under the title of "LAVANTISOL" a novel cosmetic has been introduced which seems likely to be of advantage to many patients.[2] It is a perfume containing an effective antiseptic. It provides a pure and refreshing preparation for the handkerchief, or can be used as a spray for toilet or hygienic purposes. A few drops added to a tumbler of water forms an agreeable mouth-wash. This preparation only requires to be known to be appreciated.

"FLANKETS."

In the treatment of consumptive and other tuberculous patients, the importance of clothing is apt to be overlooked. In many public sanatoria poor patients often enter, to undergo open-air treatment, unsuitably and often insufficiently clad. For the want of proper clothing the distress of many patients is much increased. The provision of suitable bed-clothing is another aspect of the same subject to which oftentimes but little attention is given. Even medical superintendents in sanatoria are wont to leave such matters to the judgment or discretion of nurses. It must be remembered that many tuberculous and tuberculously-disposed subjects perspire easily and often profusely, and are readily chilled. The new form of hygienic woollen sheets recently registered under the name of "FLANKETS" will be found excellent for such cases.[3] They provide an ideal form of bed-covering for delicate and tuberculous patients, and subjects affected with rheumatism and other enfeebling disorders. They consist of pure wool, thoroughly shrunk, and are light, warm, cleanly, and can be easily washed. By using "flankets" one can

[1] The "Pinomed" Handkerchiefs are supplied by Messrs. Thomas Christy and Co., 4-12, Old Swan Lane, Upper Thames Street, London, E.C.

[2] "Lavantisol" is supplied by the Chinosol Hygienic Company, of 16, Rood Lane, London, E.C., in bottles at 1s 6d. and 3s. 6d.

[3] "Flankets" are supplied by Christopher Williamson, 91, Edgware Road, London, W., at from 21s. 9d. per pair.

sleep between blankets without any of the irritation or discomfort which attends this procedure. For travellers in climates liable to sudden changes, or where there are extremes of heat and cold, these new forms of bed-clothing should be of real value.

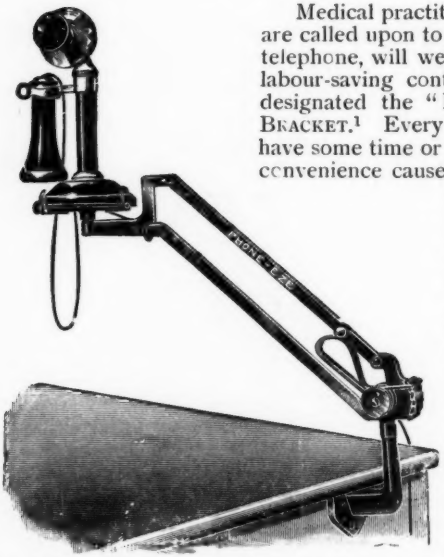
A PORTABLE HEATER.

In the conduct of the open-air treatment, especially in a climate like that of the British Isles, it cannot be denied that there are not a few difficulties to be met with, and sometimes serious discomforts to be experienced. Many patients suffer greatly from cold. The damp and chilly atmospheric conditions of winter, in not a few patients, leads to the development of painful chilblains. Moreover, it must be admitted that open-air methods are very destructive to property. Metal and wood work in sanatoria, unless specially protected or carefully supervised, soon suffer deterioration. In fact, for the comfort of patients and the preservation of structures, some method of heating is essential. In large and well-equipped sanatoria a system of radiators is now usually provided, and generally answers well, if judiciously superintended. But for small sanatoria, châlets, and shelters for individual cases and home treatment, some form of easily controlled, quickly regulated, inexpensive, and if possible portable, heater is a real desideratum. An admirable heater meeting these requirements is now available in the "REFORM" OIL HEATER.[1] Its general appearance is indicated in the annexed illustration. It is fitted with an automatic smokeless device which prevents the burning wick from emitting either smoke or smell. It burns with a steady, strong flame which generates a glowing heat. There is practically no danger in its employment. It can be easily carried while burning from room to room. The minimum of labour and expense is entailed, and the heater burns for eight or nine hours

[1] Full particulars regarding the "Reform" Oil Heater may be obtained on application to the British Petroleum Company, Ltd., 22, Fenchurch Street, E.C.

with one filling, and at a cost of less than one penny per hour. The heater is of strong construction, and with ordinary care should last for years. We believe this simple, cheap and effective appliance will be a great boon to many patients, and we have no hesitation in strongly recommending it to the consideration of medical practitioners and all responsible for the care and comfort of patients, and young or old subjects and delicate persons.

A TELEPHONE BRACKET.



Medical practitioners, and indeed all who are called upon to make frequent use of the telephone, will welcome the new time-and-labour-saving contrivance which has been designated the "PHONE-EZE" TELEPHONE BRACKET.[1] Every user of a telephone must have some time or other experienced the inconvenience caused by not having the telephone in such a position as to enable one to carry on a conversation without having to get up from the chair to do so, and also the further bother of having to hand the telephone from one side of the desk or table to another side, when there is only one telephone between two or more users. There is also the annoyance caused by having the cord in connection with the telephone lying on the table or desk, which so easily gets entangled with papers and the like. The "Phone-eze" Telephone Bracket embraces every essential quality for quick adjustment and ready convenience. In fact, the variety of adjustments of which it is capable is practically that provided by a universal joint. The bracket may be attached to a roll or flat-top desk, wall or partition, ready access to it being simple and easy in any case. When used on a double flat-top desk, or where two or more persons have access to the same telephone, it will be of exceptional service. The bracket is constructed on scientific principles throughout, and is made of the best materials. There are no intricate parts to get out of order or to clean, and the bracket is strong and likely to be durable. It is self-balancing and adjustable to a telephone of any size or weight. By its use the transmitter can be brought direct to the speaker's mouth without the inconvenience of having to rise from the desk. When not in use it can be swung out of the way, and anybody can use the same from any other direction.

[1] The "Phone-eze" Telephone Bracket is supplied by Electrical Installations, Limited, 27, Martin's Lane, Cannon Street, London, E.C. Price 21s. to 25s.

The accompanying illustration shows a form of the bracket suitable for fixing on the side of a desk. There is a special fitting made for fixing instruments on the top of a roll-top desk, so enabling the instrument to be drawn down and forward to the mouth of the user when sitting at the desk. Another useful article for users of the telephone is supplied by this same firm of telephone specialists—namely, a HYGIENIC GLASS MOUTHPIECE, which can be fixed on to any existing telephone in place of the ordinary black ebonite mouthpiece which is supplied with standard telephones. This glass mouthpiece can be washed and disinfected and kept in a thoroughly sanitary condition, thus lessening the risk of the spread of disease. Such a mouthpiece is to be recommended where a large number of people constantly use the same telephone. It should be employed in hospitals and sanatoria, and doctors would do well to advise its use.[1]

THERAPEUTICAL PREPARATIONS.

Under the name of "IODEX" a new preparation of iodine has recently been introduced which promises to be of service in the treatment of certain tuberculous conditions.[2] It is a non-staining, non-irritating, ointment-like preparation, containing 5 per cent. of free iodine in a neutral base. It does not crack, harden, blister, or irritate the skin, but is bland and emollient, and the iodine is readily absorbed. It is said to be very useful in the treatment of many tuberculous glands, and certainly is likely to be effective in the control of a number of inflammatory affections.

"PULTICINE" has been introduced as a substitute for poultices, blisters, counter-irritant oils, and the like.[3] It contains a small percentage of an organic iodine compound with boric and salicylic acids, pine oils, and natural methyl salicylate, anhydrous glycerine, and levigated calcined siliceous earth. It provides a reliable means for the continuous application of moist heat. It is, moreover, antiseptic and hygroscopic, and is likely to become a popular application for the relief of many inflammatory and painful affections.

[1] The Hygienic Glass Mouthpiece is supplied by Electrical Installations, Limited, at 1s. each.

[2] "Iodex" is supplied in 1-ounce jars (price 1s.) by Messrs. Menley and James, Ltd., Menley House, Farringdon Road, London, E.C.

[3] "Pulticine" is supplied by Messrs. Oppenheimer, Son, and Co., Ltd., 179, Queen Victoria Street, London, E.C.

NOTES.

THE POST-OFFICE PAVILION AT BENENDEN SANATORIUM.

THE Benenden Sanatorium established by the "National Association for the Establishment and Maintenance of Sanatoria for Workers" has more than justified its existence. Its success has been so manifest that extensions were soon seen to be necessary. Part of the proposed enlargement has now been attained by the building of

POST-OFFICE PAVILION, BENENDEN SANATORIUM.

the new Post-Office Pavilion. This was recently opened by the Right Hon. Herbert Samuel. Through the courtesy of Mr. C. H. Garland, the chairman of this admirable movement for the welfare of consumptive workers, we are enabled to give an illustration of the new block and an interesting account of its essential features.

The new Pavilion at Benenden Sanatorium, which was presented to the National Association for the Establishment and Maintenance of Sanatoria for Workers on September 12 last, is exceedingly interesting in several ways. *Firstly*, on account of its cheapness. It is a pavilion of twenty beds, arranged in double cubicles, five on either side of a central hall. It contains, in addition, a lavatory block, with hot and cold water, a cloak-room, boot-room, and other offices. The erection of the Pavilion, which is a permanent fireproof building, its equipment, and all additions to the dining and recreation halls to provide for its patients, cost less than £900. *Secondly*, on account of

the method of raising the cost. The money was entirely subscribed by Post-Office workers, and few of the subscriptions exceeded a shilling, and many were but a copper or two. *Thirdly*, it was a free gift, without conditions, to the Association. Mr. Herbert Samuel, the Postmaster-General, who was accompanied by Mr. Sydney Buxton, the President of the Board of Trade, presented the Pavilion on behalf of the subscribers. He mentioned that the subscription lists were issued only in September, 1909, and in September, 1910, the building stood complete, and was occupied by twenty patients. H.R.H. Princess Christian of Schleswig-Holstein sent the following message: "Her Royal Highness wishes to say what a great disappointment it is to her not to be able to be present at Benenden on September 12. It would have been most gratifying to her Royal Highness personally to receive the twenty-bed pavilion which has been so generously subscribed for by Post-Office workers. The Princess wishes Mr. Garland, and all those interested in the Sanatorium, to be assured of her constant personal anxiety for the welfare and success of the undertaking." Full particulars of this good work may be obtained on application to Mr. Hy. Seagrave, at the Sanatorium, Benenden, Kent.

PATHS OF PROGRESS.

In all parts of the world increasing activity is being displayed in the organization and conduct of the campaign against the universal foe of mankind—tuberculosis. In such a struggle international co-operation, both in regard to the study of the foe and in the direction of forces to secure its overthrow, are most desirable.

The Royal College of Physicians of London announce particulars relating to the Weber-Parkes Prize and Medals. The prize consists of 150 guineas and two silver medals. The competition is open to members of the Medical Profession in all countries. The next award will be made in 1912, and the adjudicators have selected as the subject of the essay for that occasion "The Influence of Mixed and Secondary Infections upon Pulmonary Tuberculosis in Man, and the Measures, Preventive and Curative, for dealing with them." The essay must be based on original work and observations (experimental or other) of the author, and must include a detailed exposition of the methods employed and their mode of application. All essays, together with any preparations made in illustration of them, must be transmitted to the Registrar of the College during the last week of May, 1912, in accordance with the regulations relating thereto, copies of which will be forwarded from the College on application. The award will be made on some day previous to October 18 in that year. Full particulars may be obtained on application to J. A. Ormerod, M.D., Registrar, at the College, Pall Mall East, London, S.W.

Dr. A. Mearns Fraser has recently issued a report, in which he deals with the establishment of Tuberculin Dispensaries.[1]

Dr. A. J. Anderson has recently prepared a valuable Study of

[1] A Special Report to the Council of the Borough of Portsmouth on the Subject of the Provision of Sanatorium Treatment and Tuberculin Dispensaries for the Treatment of Inhabitants of the Borough suffering from Consumption. By A. Mearns Fraser, M.D., M.O.H. 1910.

Tuberculosis in Cape Colony, which throws much light on the nature of the problem in South Africa.[1]

The Barlow Sanatorium, at Los Angeles, California, issues a well-illustrated report, which gives an excellent idea of the good work which is being accomplished in this Western establishment.[2]

Sweden has for long occupied the van among the progressive nations waging war against tuberculosis. Those able to understand Swedish will do well to consult the two latest publications of the Svenska Nationalföreningen mot Tuberkulos.[3] The same organization has prepared an informing report for the International Conference at Brussels, in which means and methods employed in the anti-tuberculosis movement in Sweden are fully explained.[4] This suggestive collection of articles by such well-known students of the tuberculosis problem as Drs. B. Buhre, F. Block, G. Neander, and C. E. Waller, deserves careful study.

Holland is conducting a vigorous campaign against tuberculosis. The Nederlandsche Centrale Vereeniging tot bestrijding der Tuberculose has just issued a very striking poster, indicating a doctor examining a tuberculous child with a binaural stethoscope. Such a picture indicates the commonsense way in which the man in the street is being educated to an understanding of the spirit and practice of medical science.

[1] "Tuberculosis and its Prevention in Cape Colony." By A. Jager Anderson, M.A., M.B., D.P.H., F.R.S., S.A., President of the Association for the Prevention of Consumption, and Medical Officer of Health for the City of Capetown. Pp. 8, with chart. 1910.

[2] The Seventh Annual Report of the Barlow Sanatorium, Incorporated, Chavez Ravine, Los Angeles, California. Pp. 43, with illustrations. 1910.

[3] "Tuberkulosens Bekampande medelst Dispensärer," af Dr. Em. Lindhagen. Pp. 96. 1910. Price 75 öre. "Dispensär-Skolerskan, Några Föredrag och Lektioner vid Svenska Nationalföreningen mot Tuberkulos Dispensärkurs." 1910. Price 1 krono.

[4] "Bulletin de la Ligue Nationale Suédoise contre la Tuberculose." Rédacteur: Dr. Sture Carlsson. Numero Spécial pour la IXe Conférence Internationale contre la Tuberculose, Réunie à Bruxelles en Octobre, 1910. Stockholm. 1910.